

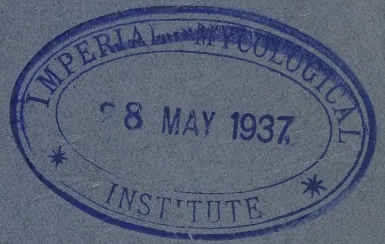
VOLUME XII

No. 1

GOVERNMENT OF NORTHERN IRELAND
MINISTRY OF AGRICULTURE

MONTHLY REPORT

MAY, 1937



PRINTED UNDER THE AUTHORITY OF HIS MAJESTY'S STATIONERY OFFICE
BY BELL & LOGAN, LTD., BELFAST

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MINISTRY OF AGRICULTURE

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MINISTRY OF AGRICULTURE

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MAY, 1937.

This will indeed be a busy month on the farm and every opportunity will be availed of to make up the arrears of work entailed in land cultivation caused by the idleness enforced by unfavourable weather conditions during the past few months. Strenuous efforts have already proved effective, and some leeway has been made up in districts where the soil was easily worked but, unfortunately, spring work remains in a very backward state at the time of writing.

It is gratifying to record that the potato trade has shown some improvement recently, and increased shipments have caused the fairly large stocks remaining on farms at the end of March to be considerably decreased.

The live stock industry also is worthy of comment, and the "boom" conditions prevailing in the store and fat cattle sections have resulted in appreciable returns being obtained for the extra expense and trouble incurred in the upkeep of cattle during the past winter. On page 7, whereon is given the census of live stock in Northern Ireland at 1st April last, readers will find some interesting comparisons made with returns at other recent dates.

AGRICULTURAL CONDITIONS.

AGRICULTURAL CONDITIONS AT 1st MAY, 1937.

Although the weather at the commencement of April was promising, and raised hopes that the heavy arrears of field work would be wiped out before the month ended, an early return to unsettled weather saw a further general hold-up of tillage operations until about the 20th of the month. From that date onwards, however, dry and warm conditions allowed rapid progress to be made with ploughing, the sowing of oats and the planting of potatoes. The wet and cold weather which prevailed during the first half of last month had the effect of worsening ground conditions and, in many heavy soil areas the land remained in an unfit state for ploughing or other cultivation work. In general, the excessive rains of the winter months have beaten down soils and rendered them difficult to work.

Owing to backwardness of spring work it is difficult to forecast, with any degree of accuracy, the extent of arable farming this year compared with last, but it may safely be stated that the area under wheat has declined as the result of unfavourable weather and soil conditions during the winter. Flax also will, in all probability, be grown on a smaller scale than last season, but the area under oats is expected to increase as the result of the reductions in the areas under wheat and flax. Similarly, the smaller area planted under early varieties of potatoes may be counteracted by an increase in the area under main crop varieties. Barley, which is grown on a relatively small area in Northern Ireland, will likely be sown on a larger scale in most districts.

Pasture lands, which were in a very bad way at the end of March, showed no marked improvement until the arrival of drier and warmer weather in the third week of April. Since then they have undergone a complete change for the better, and are now in a luxuriant state. This improvement in the position of "keep" was very welcome, since it helped to relieve the situation with regard to the feeding of stock which had remained an acute one throughout the past winter season. Home-grown feeding stuffs have lasted out fairly well despite the heavy drain on supplies—better than anticipated—and there will be a slight carry over of fodder, mostly of poor quality. Roots, however, are now almost exhausted. The dearth of purchased feeding stuffs continued to be reflected in the demand for home-grown oats, which have been used to an increasing extent in the rations, and have been selling at rising prices. The demand for purchased concentrates and meals was easier towards the end of April, and price movements tended downward.

Generally speaking, cattle and sheep have shown some improvement in condition since the arrival of warmer weather and the growth of grass, but many animals are still rather thin and backward for the time of the year. The bill of health for live stock last month remained satisfactory.

THE CROPS.

WHEAT.—In almost all districts the area sown under this crop is smaller than last year. The brairds of some crops of winter varieties of wheat are thick and making good growth, but in the majority of fields they are thin and patchy and growth is slow. In a few instances, they have proved a complete failure, and the land has had to be reploughed and resown under oats. Sowings with spring varieties of wheat were even more restricted by adverse weather and soil conditions, but it is understood that these varieties brairded rapidly and are now in a promising state.

OATS.—Good progress was made with the sowing of oats in the early districts, more especially in the latter part of April, but there yet remains a considerable amount of this work to be done. As a general rule the sowing of this crop was 3 to 4 weeks later than usual, and in late districts and heavy soil areas the ploughing of lea and potato ground has not yet been completed. The brairds of early sown oats are making good growth. In some districts sowing was rather hastily carried out under unfavourable conditions in the first half of last month.

It is reckoned that the total area under oats this year will be larger than in 1936. Many farmers who were unable to sow wheat have utilised the ground for this crop, whilst it is also learned that among those who intend to curtail their commitments as regards flax, there are some who have increased their outlay under oats. Furthermore, on account of the high costs of feeding stuffs last season, some farmers ploughed a larger area of lea for the purpose of sowing more oats.

Decreased supplies of white oats were marketed during April, and prices improved further and averaged 7/11½d. per cwt. as against 7/1d. per cwt. during March.

BARLEY.—The sowing of this crop has been practically completed, and from accounts to hand it would appear that the total area this year will be rather larger than in 1936. Apart from the tendency for farmers to take a greater interest in barley on account of the very high costs of the somewhat limited supplies of barley meal during the winter, it is understood that some ground originally intended for spring varieties of wheat and early varieties of potatoes has, perforce of weather conditions, ultimately been sown with barley.

FLAX.—It is understood that many farmers, discouraged with the returns from last season's crop, have intimated their intention of reducing their area

under flax, and, judging from the enquiries for seed, the general effect would appear to point to a marked decrease in the total area under the crop this year. Some sowing was carried out last month, but a fair amount of this work still remains to be done. It is reported that the relatively high prices ruling for the limited supplies of pure-line varieties of flax seed, particularly the "Liral" strains, have decided many farmers to sow non-pedigree seed and "Concurrent" varieties.

Only a small portion of last year's crop still remains on farms. Last month saw the end of the flax marketing season, and only small quantities were offered at a few markets where prices averaged 9/3½d. per stone, as against 9/2¼d. per stone a month previously.

POTATOES.—The planting of the first and second early varieties of potatoes was practically completed at the end of April, and a start had been made with the planting of the main crop varieties in some districts. This work is very backward this year on account of adverse weather conditions, but, granting that planting work is not hindered by further serious interruptions, there will be a slightly larger area planted under main crop varieties to offset the slight reduction in the area under "earlies". The total area under potatoes this season should, therefore, show no material change from last year.

Supplies of last year's crop have kept moderately well—better than anticipated earlier—and sprouting was later than usual. Nevertheless, the losses from rotting in the pits have been considerable, and with the run on supplies occasioned by the better demand of late, the quantities of sound ware potatoes remaining on farms have been reduced to lower dimensions than at this time last year.

The following were the quantities shipped weekly during last month compared with a year ago:—

1937			1936		
Week ending		Tons	Week ending		tons
April 3rd	..	6,570	April, 4th	..	5,346
10th	..	8,744	11th	..	6,725
17th	..	8,875	18th	..	6,303
24th	..	5,482	25th	..	8,918
May 1st	..	4,559	May 2nd	..	13,216

Growers' prices improved steadily during the month, but, towards the close, trade slackened and prices cheapened slightly. The following were the prices paid by shipping merchants during the week ended 1st May:—

	Bagged.	Loose.
Up-to-Date (Red Soil)	£4-10-0	£4-0-0 to £4-5-0
Up-to-Date (Grey Soil)	£4-5-0 to £4-10-0	£4-0-0
Arran Banner	£4-0-0 to £4-5-0	£3-15-0 to £4-0-0
Arran Consul	£4-10-0	£4-0-0
Arran Victory	£4-0-0 to £4-10-0	£3-15-0 to £4-5-0
Kerr's Pink	£4-0-0 to £4-17-6	£3-15-0 to £4-12-6

Supplies marketed for local consumption were appreciably smaller last month than in March, and the monthly average prices recorded further increases, Arran Victory and Kerr's Pink improving by $4\frac{3}{4}$ d. to $4/6\frac{1}{4}$ d. and $4/8$ d. per cwt. respectively, whilst the average for all classes improved from $4/1\frac{1}{4}$ d. to $4/6\frac{1}{2}$ d. per cwt.

TURNIPS.—This crop has nearly all been used up. There have been many complaints of rotting and diseased roots, but the keeping qualities generally have been fairly satisfactory considering the season.

MANGELS.—The roots kept fairly well, but supplies are now almost exhausted.

HAY.—There are still fair supplies of hay available throughout the country, but the quality of most of it is inferior. Good quality hay is very scarce and dear. Supplies marketed last month were smaller than in March and prices, continuing their upward trend, rose by $2/4$ d. per cwt. on the month to $74/8$ d. per ton for first and second year's (upland) hay, and $58/-$ per ton for meadow hay.

LIVE STOCK.

CATTLE.—As a general rule the condition of store cattle is only moderate. Many animals were in a backward state, but since the arrival of warmer weather and better keep they have begun to make a thrive. It is estimated that the numbers of store and fat cattle have decreased on the year. The demand for forward stores and for beef cattle was very keen throughout April, and prices reached higher levels than have been attained for many years.

Dairy cattle are in fairly good condition, having made some improvement since the warm weather set in, and the bill of health is satisfactory. The milk yield remained slightly depressed during the cold and damp weather period, but has since picked up somewhat. Trade for dairy stock at fairs last month ruled steady for the best types of dairy cows, which were in small numbers and selling freely at around late rates.

SHEEP.—Sheep have shown some improvement in condition, but many animals are still in a backward state reflecting the severity of the winter season. The recent good weather and the better pasturage have helped to effect some improvement in the general condition of the flocks. Lambing proceeded normally during April, and is now almost completed. There has been a very good crop of lambs this year, but losses have been much heavier than usual, chiefly as the result of very severe weather during March, and also on account of the prevalence of pregnancy disease among the ewes.

Slightly increased offerings at fairs met an improved trade, and fat sheep were selling at recent remunerative rates, whilst the demand for fat lambs

was much in excess of supplies, which were very limited, and prices for these reached very high levels. The best types of breeding ewes with lambs at foot also sold readily at firm rates.

PIGS.—Young pigs were in much larger supply than a month ago, but trade continued slow in most districts, and prices on the whole were easier on the month. The best types of breeding sows were in moderate request at from £6 to £10 each, but for other descriptions business continued dull and sales were hard to effect.

HORSES.—Trade ruled fairly good for all types of horses last month, and the prices were little altered. Good farm horses were fetching up to £55 each, and second-quality animals around £30 each. There was a good enquiry for horses for export, and prices for these and for good types of van horses ranged from £40 to £60 each.

MILK.—The milk yield showed no marked improvement until the arrival of the warmer weather in the second half of April, and on the whole it may be stated to have remained slightly below normal for the season of the year. Creameries paid from 4½d. to 5½d. per gallon for milk delivered, the separated milk being returned to the farmer. The rate of equalisation payment for milk produced in Northern Ireland and delivered to creameries for the month of March last was 0.61d. per gallon in order to bring the average price in respect of this month to 6d. per gallon in accordance with the Milk and Milk Products Act (Northern Ireland), 1934. It should be noted that under the regulations creameries are required to distribute equalisation payments in accordance with the butter fat content of the milk received from each supplier.

THE COST OF LIVING INDEX FIGURE.

At 1st April, 1937, the cost of living index figure was 51, or the same as that for the previous month. The figure at 1st April, 1936, was 44.

THE MARKETS DURING APRIL.

Supplies of the principal vegetables marketed last month, with the exception of carrots and parsnips, were much smaller than in March, and prices in the main were cheaper on the month. Cabbage were 6½d. cheaper at 1/0½d. per dozen; cauliflower, 2¾d. cheaper at 1/2¼d. per dozen; leeks, ½d. cheaper at 6½d. per bunch, and parsley ¼d. cheaper at 5d. per bunch. The slightly increased supplies of carrots and parsnips cheapened by 1½d. and 1d. respectively to 6/6d. per cwt. for carrots, and 7/- per cwt. for parsnips. Turnips were in smaller quantity and prices cheapened by 1½d. to 1/7¼d. per cwt. The considerably decreased supplies of savoys rose in price by 3¾d. to 1/9d. per dozen.

Farmers' butter increased slightly in supply, chiefly as the result of a larger quantity of print butter being marketed. The latter was $\frac{3}{4}$ d. dearer at $1/2\frac{3}{4}$ d. per lb., whilst lump butter was stationary at $11\frac{1}{4}$ d. per lb. There were further seasonal increases in supplies of hen and duck eggs, and prices cheapened further by 1d. to $5\frac{1}{2}$ d. per lb. in the case of hen eggs, and by $1/8$ d. to $7/8\frac{1}{2}$ d. per 120 in the case of duck eggs. Poultry were offered in smaller numbers, and prices eased in the case of hens and chickens by $\frac{1}{2}$ d. to $1/7\frac{3}{4}$ d. each for hens, and $2/5\frac{3}{4}$ d. each for chickens, whilst ducks rose by $\frac{1}{2}$ d. to $2/3$ d. each. Small lots of wool continued to be marketed, and long unwashed wool fetched higher rates at $11\frac{1}{4}$ d. per lb., and mountain unwashed wool improved to 10d. per lb.

LIVE STOCK CENSUS, APRIL, 1937.

A further quarterly census of live stock was taken at the 1st April, last. The census was taken on lines similar to those in October and April of last year, and in the same months in 1935. Forms were sent to some 19,000 farmers with a request that they should supply particulars of the numbers of cattle, sheep and pigs on their farms at the 1st April, 1937, and 10,000 made returns. The numbers of live stock in Northern Ireland were estimated from these returns.

The result of the estimate, together with the estimated number of live stock at the 1st April, 1936, and the numbers returned at the complete enumeration at the 1st June, 1936, and the 1st January, 1937, are shown in the table below with the percentage changes which have occurred in the numbers since each of those dates.

		1st April, 1937	1st January, 1937	1st June, 1936	1st April, 1936	% Increase April, 1937 as compared with		
						January, 1937	June, 1936	April, 1936
Milch Cows	..	241,000	244,038	249,802	246,000	— 1.3	— 3.5	— 2.0
Heifers in calf	..	34,000	30,284	25,128	39,000	12.3	35.3	—12.8
Other Cattle	..	448,000	438,232	494,723	472,000	2.2	— 9.5	— 5.1
Total Cattle	..	723,000	712,554	769,653	757,000	1.5	— 6.1	— 4.5
Ewes	..	384,000	418,770	381,526	380,000	— 8.3	0.6	1.1
Other Sheep	..	357,000	111,547	453,228	401,000	220.0	—21.2	—11.0
Total Sheep	..	741,000	530,317	834,754	781,000	39.7	—11.2	— 5.1
Sows	..	57,000	57,171	56,509	56,000	— 0.3	0.9	1.8
Other Pigs	..	517,000	502,671	465,145	458,000	2.9	11.1	12.9
Total Pigs	..	574,000	559,842	521,654	514,000	2.5	10.0	11.7

PRICES OF AGRICULTURAL PRODUCE.

Table showing the average prices of agricultural produce in Northern Ireland during the three months ended 31st March, 1937, together with comparative figures for the same period in 1936, and the average prices ruling during the first quarter of the years 1911-1913:—

COMMODITY.	Quarter ended 31st March,				Percentage increase or decrease in price as compared with the corresponding period 1911-13.	
	NORTHERN IRELAND.		ULSTER			
	1937	1936		1911-13	1st Quarter, 1937	1st Quarter, 1936
	£ s. d.	£ s. d.	£ s. d.		%	%
Oats (White) per cwt. ..	0 6 9	0 5 1	0 6 7½		+ 1.57	-23.51
Potatoes do ..	0 4 1	0 4 2½	0 3 2½		+27.27	+31.17
Hay, Clover do ..	0 3 6½	0 3 2½	0 3 5½		+ 3.03	- 7.27
" Meadow do ..	0 2 6½	0 2 5½	0 3 4½		-25.15	-27.6
Grass Seed :—Perennial per cwt	0 15 11½	0 13 2	0 12 6½		+27.24	+ 4.98
Flax per stone ..	0 9 8	0 8 10	0 8 9½		+ 9.69	+ 0.24
Calves (Young) 6-12 months per head ..	1 11 7	1 10 0	1 12 7½		- 3.19	- 8.04
Store Cattle, 1-2 years ..	6 14 1	6 3 0	4 16 11½		+38.29	+26.85
" " 2-3 years ..	9 2 11	8 9 10	7 12 2		+20.21	+11.61
Fat Cattle ..	11 9 0	10 11 5	10 1 1½		+13.87	+ 5.12
" " Cows and Bulls ..	13 15 9	13 11 9	13 7 4		+ 3.15	+ 1.65
" " Cows and Heifers) ..	11 2 6	11 0 6	14 16 1		-17.62	-18.36
Springers (Cows and Heifers) ..	15 12 6	14 6 11	14 16 1		+ 5.54	- 3.1
Milch Cows (down calved) ..	14 13 6	13 4 3	13 10 3½		+ 8.59	- 2.22
Fat Sheep, over 2 years ..	1 13 10	1 12 0	1 17 6		- 9.78	-14.67
Sows for Breeding ..	6 8 4	6 8 2	5 10 9		+15.88	+15.72
Young Pigs, 8-10 weeks old ..	1 8 9	1 10 1	1 4 2½		+18.86	+24.37
Pork per cwt. ..	† 3 4 5	† 2 15 9	2 14 7		+18.02	+ 2.14
Butter, Farmers' ..	5 10 2	5 19 0	5 9 3½		+ .80	+ 8.88
Hen Eggs per lb. ..	0 0 7½	0 0 7	* 0 9 6½		—	—

* All Ireland price per 120.

† Average prices calculated from purchase and grading statements, allowance being made for deductions for levy and contribution charges.

It will be seen from the table on page 8 that the average prices of the principal agricultural commodities in the first three months of the present year were, with only a few exceptions, generally higher than for the corresponding period in 1936, and the first quarter of the pre-war years 1911-1913. Among the crop products listed, white oats, hay, perennial grass seed and flax were all dearer than a year ago, whilst potatoes were just below the average price recorded for 1936. The most appreciable advance was recorded for white oats, which recovered to just above their pre-war basic price. Last year's hay crops were generally inferior in quality and yield, and on account of the severe winter it was to be expected that prices would rise, but the slight advances recorded were doubtless affected by the quality of most of the produce. Potatoes were $1\frac{1}{2}$ d. per cwt. cheaper than in 1936, when there was a stronger shipping demand, but trade during the first three months of this present year was on the whole satisfactory, and prices were maintained well above the pre-war basic figure. Perennial grass seed rose by $2/9\frac{1}{2}$ d. to $15/11\frac{1}{2}$ d per cwt. for the first quarter of this year, and the latter figure records an advance of $3/5$ d. or 27.24 per cent. over that for the years 1911-1913. Although flax prices were none too satisfactory this season, the average price obtained at markets for the first three months of this year was higher than that of a year ago, which was on a par with the pre-war price level.

Again the cattle sections of the industry furnished the most satisfactory returns and all descriptions of stores, fats, and dairy cattle improved in price on the year. Store cattle especially recorded the most appreciable advances, but prime fat cattle and the best types of dairy stock also were a much better trade. Fat sheep remained in strong request, and the limited supplies of these were reflected in firmer rates obtainable during the first three months of this year compared with last. In the pig section it is interesting to note that, notwithstanding a considerable rise in the price of pork, young pigs were a little cheaper than for the first three months of 1936: sows for breeding remained at about last year's price level. Of the other two items listed, farmer's butter was rather cheaper than a year ago, whilst hen eggs were generally selling at firmer rates.

In general it may be stated that the prices of agricultural produce last quarter followed the recent trend in other industries, and comparing the figures over a longer period the increases appear to have been very gradual. This aspect is most encouraging, since it more or less indicates a general firmer tendency in agricultural prices, for some time to follow, more especially following a bad winter and unsatisfactory spring season for getting in the crops.

MILK AND MILK PRODUCTS ACTS (NORTHERN IRELAND), 1934 & 1936.

EQUALISATION AND BONUS PAYMENTS.

Under the Milk and Milk Products Act (Northern Ireland), 1934, equalisation payments have been paid to creamery suppliers since the 1st April, 1934, and in 1936 the Act was amended so as to make the suppliers of prescribed undertakings also eligible for the award of these payments as from the 1st April, 1934. Three undertakings engaged in the manufacture of butter from the milk of several cow-keepers, were prescribed by the Ministry. Figures for the three years ended 31st March, 1937, are now available, and it may be of interest to see how far the producers of milk for manufacturing purposes have benefited from the financial assistance afforded to them under the above-mentioned Acts.

The quantity of milk supplied to creameries and prescribed undertakings for manufacturing purposes each month during the years 1934-35, 1935-36 and 1936-37 is shown in the following table:—

Month.	1934-35.	1935-36.	1936-37.
	Gallons.	Gallons.	Gallons.
April	805,332	1,222,022	1,480,684
May	1,465,535	2,440,988	2,590,722
June	2,616,290	3,253,384	3,715,046
July	2,752,354	3,607,191	4,028,679
August	2,696,407	3,255,977	3,467,566
September ..	2,130,802	2,729,203	3,014,723
October	1,879,637	2,240,371	2,540,532
November ..	1,243,755	1,531,638	1,478,766
December ..	895,737	1,140,401	962,790
January	752,527	1,005,702	795,697
February ..	658,487	899,894	713,311
March	864,602	1,106,094	884,779
Total ..	18,761,465	24,432,865	25,673,295
No. of Creameries and prescribed undertakings ..	108	110	106

It will be observed that the supply increased very substantially in 1935-36, and it is probable that the further increase recorded in 1936-37 would have been considerably greater but for the severity of the weather during the past winter. The position as regards supplies in 1935-36 and 1936-37, as compared with 1934-35, will be more readily appreciated from the following percentage figures:—

Period.	Increase in supply as compared with 1934-35.	
	1935-36.	1936-37.
Summer months (April-September)	32.42%	46.77%
Winter months (October-March)	25.88%	17.18%
Full year	30.23%	36.84%

The seasonality of supply is shown in the following table, in which the monthly gallonages are expressed as percentages of the total supply for the year :—

Month.	1934-35.	1935-36.	1936-37.
	%	%	%
April	4.3	5.0	5.8
May	7.8	10.0	10.1
June	13.9	13.3	14.5
July	14.7	14.7	15.7
August	14.4	13.3	13.5
September ..	11.4	11.2	11.7
October	10.0	9.2	9.9
November ..	6.6	6.3	5.8
December ..	4.8	4.7	3.7
January	4.0	4.1	3.1
February	3.5	3.7	2.8
March	4.6	4.5	3.4
Total	100.0	100.0	100.0

In each of the three years the supply increased steadily from April to July, then declined until February, and improved again in March. Approximately two-thirds of the supply was produced in the summer period (April-September).

In the following table are given the numbers of farmers supplying milk to creameries and prescribed undertakings, and the average gallonage delivered each month during the period 1st April, 1934, to 31st March, 1937 :—

Month.	No. of Suppliers.			Average gallonage.		
	1934-35.	1935-36.	1936-37.	1934-35.	1935-36.	1936-37.
April	11,420	14,626	16,818	71	84	88
May	13,736	18,152	19,799	107	134	131
June	16,936	21,334	22,253	154	152	167
July	18,642	21,618	22,987	148	167	175
August	18,566	21,571	22,976	145	151	151
September ..	17,394	21,260	22,704	123	128	133
October	17,745	21,081	22,317	106	106	113
November ..	16,943	20,117	20,836	73	76	71
December ..	15,481	18,382	18,035	58	62	53
January	15,266	17,108	15,943	49	59	50
February	13,652	15,765	14,628	48	57	49
March	13,620	15,719	14,627	63	70	60
Average per month	15,783	18,895	19,493	99	108	110

It will be noted that the number of suppliers steadily increased, and also that the improvement in the average quantity of milk delivered monthly by each supplier in 1935-36 was more than maintained in 1936-37, despite the unfavourable climatic conditions in the winter months of the latter year.

In the next two tables are given the numbers of suppliers and the average gallonage delivered per supplier to creameries and prescribed undertakings in each county during each month of the year ended 31st March, 1937, together with average figures for the year 1935-36 :—

NUMBER OF SUPPLIERS.

Month.	Antrim	Armagh	Down	Fer- managh	London- derry	Tyrone	Belfast Co. Boro	Total
April, 1936 ..	2,511	1,099	416	5,480	910	6,146	256	16,818
May ..	2,720	1,520	568	6,095	1,238	7,367	291	19,799
June ..	3,013	1,885	874	6,378	1,457	8,276	370	22,253
July ..	3,054	1,961	931	6,456	1,512	8,745	328	22,987
August ..	3,019	1,956	923	6,454	1,517	8,799	308	22,976
September ..	3,008	1,934	866	6,392	1,517	8,724	263	22,704
October ..	2,978	1,858	820	6,324	1,450	8,561	326	22,317
November ..	2,815	1,709	721	5,918	1,304	8,088	281	20,836
December ..	2,541	1,351	628	5,253	1,035	6,963	264	18,035
January, 1937	2,357	1,142	523	4,712	853	6,092	264	15,943
February ..	2,224	974	454	4,525	756	5,372	323	14,628
March ..	2,219	927	424	4,645	742	5,274	396	14,627
Average for year	2,705	1,526	679	5,719	1,191	7,367	306	19,493
Average for 1935-36 ..	2,695	1,334	438	5,849	1,118	7,208	253	18,895

It will be observed that the average number of suppliers in each county in 1936-37 was greater than in 1935-36, except in the case of County Fermanagh. In each year Counties Fermanagh and Tyrone accounted for slightly over two-thirds of the total number of suppliers.

AVERAGE GALLONAGE DELIVERED PER SUPPLIER.

Month	Antrim	Armagh	Down	Fer- managh	London- derry	Tyrone	Belfast Co. Boro	Northern Ireland
April, 1936	119	69	104	80	89	79	245	88
May	166	101	131	130	134	119	272	131
June	198	132	148	171	164	160	250	167
July	202	141	167	177	167	170	308	175
August	181	122	151	148	149	146	279	151
September	168	112	140	120	141	126	323	133
October	152	96	120	103	122	105	251	113
November	107	62	76	58	74	65	183	71
December	84	47	62	39	50	49	191	53
January, 1937	82	45	59	34	49	45	159	50
February	78	42	61	34	44	44	147	49
March	90	61	62	47	59	53	184	60
Average for year	140	92	115	101	113	103	245	110
Average for 1935-36	131	89	104	103	106	102	218	108

It will be seen that in every county except Fermanagh the average gallonage delivered per supplier in 1936-37 recorded an increase on the figure for 1935-36.

The following table gives the average prices paid by creameries each month during the period 1st April, 1933, to 31st March, 1937, and also the amount of equalisation payment per gallon paid since the 1st April, 1934 :—

	Average price per gallon.				Amount of Equalisation Payment per gallon.		
	1933-34.	1934-35.	1935-36.	1936-37.	1934-35.	1935-36.	1936-37.
	d.	d.	d.	d.	d.	d.	d.
April	3.79	3.7	3.61	4.19	1.3	1.39	.81
May	3.26	3.3	3.18	3.80	1.7	1.82	1.20
June	3.11	3.0	3.11	3.96	2.0	1.89	1.04
July	3.08	2.8	3.34	4.20	2.2	1.66	.80
August	3.23	2.9	3.70	4.41	2.1	1.30	.59
September	3.72	2.92	4.29	4.42	2.08	.71	.58
October	3.99	3.01	4.86	4.36	2.99	1.14	1.64
November	4.20	3.34	4.86	4.94	2.66	1.14	1.06
December	4.37	3.68	5.29	5.32	2.32	.71	.68
January	4.40	3.95	5.08	5.29	2.05	.92	.71
February	4.35	4.06	5.15	5.43	1.94	.85	.57
March	4.19	4.12	4.87	5.39	1.88	1.13	.61
Average for year	3.56	3.18	3.99	4.38	2.15	1.33	.90

The total average amount per gallon paid to suppliers in 1936-37 was 5.28d. as compared with 5.32d. in 1935-36 and 5.33d. in 1934-35. It will be noted that the prices paid by creameries in 1936-37 were higher than in 1935-36, due mainly to an increase in sales on the liquid cream market.

The numbers of gallons of each grade of milk supplied to creameries and prescribed undertakings for manufacturing purposes from 1st April, 1936, to 31st March, 1937, were as follows :—

Month.	Grade A.	Grade B.	Grade C.	Grade D.	Total.
April, 1936 ..	1,101	11,549	527,562	940,472	1,480,684
May ..	1,672	21,862	861,359	1,705,829	2,590,722
June ..	1,736	24,805	1,074,417	2,614,088	3,715,046
July	1,764	20,211	1,229,998	2,776,706	4,028,679
August	1,667	15,448	1,122,699	2,327,752	3,467,566
September ..	1,881	13,001	1,011,185	1,988,656	3,014,723
October ..	810	11,847	874,994	1,652,881	2,540,532
November ..	350	4,882	526,807	946,727	1,478,766
December ..	299	2,304	360,430	599,757	962,790
January, 1937 ..	599	5,337	307,514	482,247	795,697
February ..	662	3,661	298,128	410,860	713,311
March ..	811	5,130	399,537	479,301	884,779
Total for period 1.4.36-31.3.37	13,352	140,037	8,594,630	16,925,276	25,673,295
Total for period 1.4.35-31.3.36	4,507	101,233	5,610,065	18,717,060	24,432,865

It will be noted that while the total supply in 1936-37 was about $1\frac{1}{4}$ million gallons greater than in 1935-36 the quantity of Grade C milk increased by almost 3 million gallons, and Grade D milk declined by just over $1\frac{3}{4}$ million gallons. The monthly gallonages, by grades, are shown in the following table as percentages of the total supply :—

Month.	Grade A.	Grade B.	Grade C.	Grade D.	Total.
April, 1936 ..	0.074	0.780	35.630	63.516	100
May ..	0.065	0.843	33.248	65.844	100
June ..	0.047	0.668	28.920	70.365	100
July ..	0.044	0.502	30.531	68.923	100
August ..	0.048	0.446	32.377	67.129	100
September ..	0.062	0.431	33.542	65.965	100
October ..	0.032	0.466	43.441	65.061	100
November ..	0.024	0.330	35.625	64.021	100
December ..	0.031	0.239	37.436	62.294	100
January, 1937 ..	0.075	0.671	38.647	60.607	100
February ..	0.093	0.513	41.795	57.599	100
March ..	0.091	0.580	45.157	54.172	100
Average for year ..	0.052	0.545	33.477	65.926	100
Average for 1935-36	0.019	0.414	22.961	76.606	100

It will be observed that the quantity of Grade C milk rose consistently from about 29 per cent. in June, 1936, to over 45 per cent. in March, 1937, while supplies of Grade D milk declined from about 70 per cent. to 54 per cent. over the same period.

Suppliers of Grade A or Grade B milk to a creamery or prescribed undertaking for manufacturing purposes are entitled to a bonus payment of 2d. per gallon, while in the case of Grade C milk the bonus is 1d. per gallon. These bonus payments have been made as from the 16th December, 1934, and the number of licensed producers supplying milk to creameries and prescribed undertakings has increased from approximately 900 in the early stages of the scheme to 4,604 at 30th April, 1937. Bonus payments are made direct to the suppliers on a gallonage basis, but equalisation payments, although made to creameries and prescribed undertakings on the same basis, are distributed among suppliers according to the butter-fat content of the milk delivered by them. The residual separated milk is, as a rule, returned to the suppliers, who make use of it for the feeding of calves, pigs and poultry.

The total amounts paid to suppliers of creameries and prescribed undertakings in respect of the years 1934-35, 1935-36 and 1936-37, were approximately as follows :—

	1934-35.	1935-36.	1936-37.
Paid by creameries and prescribed undertakings	£ 256,548	£ 413,415	£ 476,420
Paid by Ministry—			
(a) Equalisation Payments	168,105	135,378	96,209
(b) Bonus Payments	932	24,256	37,089
Totals	£407,404	£573,049	£609,718

The foregoing figures, certain of which are still subject to minor adjustment, show conclusively that the production of milk for manufacture at creameries and prescribed undertakings has markedly increased as a result of the financial assistance afforded under the Act, and also that there is a steady improvement in the quality of the milk delivered.

Provision has been made for the payment of equalisation payments until the 30th September, 1937.

EDUCATIONAL EXHIBIT.

The Ministry's Exhibit will be staged as usual in the Central Exhibition Hall and Annexe at the Royal Ulster Agricultural Society's Show, which will be held at Balmoral, on Wednesday, Thursday, Friday and Saturday, May 26th, 27th, 28th and 29th.

The principal exhibits will concern the cultivation of field crops, live stock, milk production, diseases of livestock, poultry-keeping, horticulture and bee-keeping, marketing of farm produce, diseases of crops, and forestry. In addition, information will be available on the type of instruction given at the Agricultural Colleges and Schools for young men and young women in Northern Ireland, and at the Winter Agricultural Classes for young farmers.

In the Potato Section there will be an exhibit of tubers and of growing plants in which several of the existing standard varieties of potatoes will be compared with the following new varieties :—Ulster Monarch, Doon Early, Arran Peak, Gladstone, Redskin and Dunbar Standard. In addition, a series of potato plants will be on view to show the effects on the foliage of Leaf Roll and of various types of Mosaic. A further section will deal with some of the "scabs" which affect potatoes and will demonstrate methods of disinfection of "seed".

The Plant Breeding Exhibit will include the various types of flax and of varieties of cereals under test at the moment, and will make a special feature of the results of past trials. In flax, strong emphasis will be laid upon the

economic advantages of the new strains and varieties, some of which have produced crops of a value increased by as much as 57 per cent. over ordinary commercial strains. In oats, the results will be presented in such a way that a farmer may see at a glance which varieties are most suitable for his own particular district.

A Section will deal with the disinfection of cereal seeds.

The Seed Testing Exhibit will be devoted mainly to a demonstration of pasture improvement by the use of new strains of perennial ryegrass. The turves illustrating this exhibit have been taken from five-year-old pastures in which contiguous plots were sown with improved strains and with ordinary commercial strains, respectively. Each turf has been cut across the line of junction of such a pair of plots, in order to emphasise the differences between the grass types used. An actual botanical analysis of each pasture accompanies the turves to show the composition of the herbage. The processes employed in testing farm and garden seeds are demonstrated by analysts at work.

As usual, the space in the Annexe will be allocated to live animals which show features of educational value. Different lots of pigs will show the results from different methods of feeding the ration, the composition of the rations being similar. Dry feeding will be compared with wet feeding, and free access to food will be compared with feeding a restricted quantity of food. Pigs from another experiment will show the results from varying the proportion of protein in the ration at different stages of the animals' growth. Other exhibits will deal with the management of young pigs before and after weaning. As in previous years, attention will be drawn to the suitable and unsuitable types for present requirements.

An entirely new feature in the live stock exhibits is the exhibition of a proven sire. An aged dairy shorthorn bull will be on view alongside some of his female progeny which are now in milk. Posters will show how this bull has influenced his progeny and raised their milk yields above those of their dams.

Because of the increased numbers of live stock being kept in Northern Ireland the Ministry is paying particular attention to the quality of the food-stuffs for pigs, poultry, and cattle being offered for sale. A survey has been made which revealed the fact that a certain amount of adulteration, particularly in wheat offals, was prevalent. It has also been found that while a great many of the proprietary foods may be termed good value, there are still a number of spurious proprietary foods being offered. A section of the Exhibit will attempt to give farmers such information as will help them to see that they get the very best value for the money which they expend on feeding stuffs.

The use of cod liver oil is on the increase. The chief value of cod liver oil for farm stock lies in its content of vitamins, particularly vitamin D. Many inferior and adulterated oils, containing little or no vitamins are on the market. An exhibit will explain the guarantees with which cod liver oil should comply.

The Veterinary Research stand will again have as its slogan the sound principle "Prevention is better than cure". The methods by which this principle can be put into practice will be shown in the case of such poultry diseases as Bacillary White Diarrhoea, Coccidiosis, Tuberculosis, Fowl Typhoid, Fowl Paralysis, etc. Diseases affecting pigs will receive due attention. A section of this Exhibit will deal with Scheduled Diseases, and show that with the co-operation of live stock owners these diseases may be wiped out. Advice on the planning of new byres or the conversion of old ones may be had at this stand.

A special Exhibit in connection with the destruction of the Ox Warble Fly will be staged near the live stock exhibits.

In the Section devoted to poultry-keeping the importance of farmers allowing poultry to follow a definite rotation round the farm by running them on the oldest temporary pasture, i.e. the year previous to ploughing, will be emphasised. By doing this the land will not become poultry-sick, and the incidence of disease will be greatly reduced. To follow out this practice poultry houses must be movable. Modern slatted-floor houses present no difficulty in this respect, but this is not so with other types of houses. An exhibit will show how older houses of the solid floor type may be made suitable for moving. Another exhibit will show the effects of carrying to extremes certain points in culling. A section will be devoted to the feeding of poultry, and included in this will be the results of a poultry-feeding experiment carried out at Greenmount Agricultural College, where the value of bran was clearly demonstrated. This experiment also shows that the standard layers' mash, as recommended by the Ministry for many years may still be depended on to produce satisfactory results.

Separated milk is an invaluable food for chickens. When separated milk is used, losses from diseases are reduced and profits are increased. These facts have been brought out in many experiments, particulars of which will be exhibited.

In the Marketing of Eggs and Poultry Section attention will be drawn to some of the faults which cause the quality of eggs to deteriorate in storage, and the methods by which these faults may be avoided will be shown. The grades and packing of eggs for export will be shown, and information on the grading of dead poultry will be available.

The chief aim of the Dairying Exhibit will be to emphasise the importance of the washing and sterilisation of dairying equipment. Another section will deal with flavours and taints in milk. The sources of these taints will be pointed out and means of remedying them suggested. The high value of milk and milk products as a food for human beings will be illustrated, and suggestions made whereby consumption could be appreciably increased.

The Butter Marketing Section of this exhibit will feature Ulster Creamery Butter—Premium Grade. Attention will be drawn to the fact that the production of all registered creameries is now graded and customers can be assured that only those creameries producing uniformly high-quality butter will be permitted to sell their produce in the new approved wrapper and carton.

In the Horticultural Section an effort will be made to show how the ever increasing demand for salad crops may be met to a much greater degree than at present by the home producer. A feature of the exhibit will be a plot showing how a sequence of lettuce may be grown practically all the year round, and giving the names of suitable varieties.

Another section will deal with methods of controlling some of the diseases and pests of fruit, vegetable and glass-house crops.

To satisfy man's inherent love of the beautiful, as well as of the practical, a selection of the commoner flowering annuals will be shown.

The Forestry Section will deal with the management of young trees from the seedling stage to the final thinning. Particular attention will be given to the methods of preventing damage by rabbits. A special feature of the section will be a display of timber suitable for the making of poultry houses. Some of the uses to which larch thinnings from young plantations may be put will be illustrated by an exhibit of rustic seats and a summer-house made from such material.

The Ministry has, for the past eight years, conducted costings on a number of typical farms in Northern Ireland. Figures giving the annual expenditure and income from these farms will be shown. A study of these figures is strongly recommended as they indicate which particular branches of farming are yielding the best returns.

Copies of leaflets and pamphlets will be available at the leaflet stand in the Hall.

The Exhibit will be open for inspection as follows :—

Wednesday, 26th May, from 10 a.m. to 6 p.m.

Thursday, 27th May, from 10 a.m. to 9 p.m.

Friday, 28th May, from 10 a.m. to 6 p.m.

Saturday, 29th May, from 10 a.m. to 6 p.m.

HINTS TO PRODUCERS ON THE CARE AND HANDLING OF EGGS FOR MARKET.

Talk broadcast by Mr. R. F. Thompson of the Ministry, from the Belfast Studio, on Friday, 5th March, 1937.

This talk is reproduced through the courtesy of the British Broadcasting Corporation.

When you consider that the annual output of poultry and poultry products in Northern Ireland amounts to approximately £3,250,000, you will then realize the importance of the Poultry Industry in the agricultural economy of this country. The export trade in eggs to Great Britain is about 831,000 cases per annum with an estimated value of £1,500,000, and prices obtained for these eggs have a great influence on prices paid to producers in the home market.

Competition in the British market is very keen, and if we are to maintain a leading position and increase demand, we must market an article superior to any other. Countries which compete for this market are striving to reach the top by presenting their produce in the best and most attractive form, and if Northern Ireland is to hold its place, every effort must be made by the producer, as well as by the dealer and shipper, to see that nothing but first quality stuff is turned out.

The first legislation for the improvement of the marketing of eggs in Northern Ireland was introduced in 1924. Since that time the quality and reputation of our produce has steadily advanced, but there is still room for further improvement. As this scope for further improvement rests largely with the producers or poultry-keepers who sell eggs for commercial purposes, my talk to-night is specially addressed to them.

In spite of the instruction which has been given over a long number of years on the proper care and handling of eggs, many producers do not yet seem to realise the importance of taking the necessary care in handling and preparing eggs for market. It may surprise many producers to know that during the summer and autumn months a proportion of their eggs, as offered for sale, are not fresh or of first quality, and must, therefore, be stamped "seconds" and sold by packers at a very reduced price. Such eggs are used mostly for baking purposes or for immediate consumption.

The present system of identification enables the testers to know from whom each lot has been bought, and the testing results are very interesting. In some cases the eggs are all of first quality, in others a large percentage are "seconds", and some lots contain "rejects". I would like to mention here

that in reference to quality there are three types, first "fresh" or "new laid", then "seconds", and finally "rejects" or bad eggs. These terms refer only to quality, and have no reference to the size or weight of the egg. A great deal of attention is now being given to the breeding, feeding and general management of poultry by those who produce eggs for sale. But the care with which the eggs are handled, and their storage between the time they are produced and the time of sale, are not looked upon as being particularly important by a large number of producers.

This may be due partly to want of knowledge, and partly because of the fact that the producer obtains the same price for stale or second quality as for "fresh" or "new laid" eggs. It is surely a great pity that when producers go to all the expense of rearing, housing and feeding their poultry, they should not take the little extra care required to market their produce in first class condition. This is the part of the whole process which costs nothing in actual cash, but it is often neglected, with the result that the value of supplies is reduced to far below the price they would otherwise fetch. In addition to this, eggs which are of "second" quality add considerably to the cost of handling on the part of the merchant.

Recent legislation provides that in future eggs may be purchased from producers on a quality basis. Now I think anyone who understands the position, or has the interests of the industry at heart, will admit that this is not only fair to the man who takes the trouble to produce a first class article, but is a step in advance of anything which has yet been attempted. The new system will simply mean that producers will receive the actual value of their eggs according to quality, and I believe that those who receive a reduced price for "second" quality eggs and nothing for "rejects" will soon find out where their handling is at fault, and take steps to put it right.

I would like to say here that some of the larger poultry-keepers, who consider their methods of handling eggs above reproach, will get a surprise when this scheme is introduced, as they are often found to be amongst the worst offenders. In future, soiled, stained or dirty eggs may be treated as "seconds", and stamped and purchased at the price of "seconds". Although the offering for sale of soiled, stained or dirty eggs has been an offence for which many fines have been imposed, this class of egg still continues to be offered for sale.

As I have already mentioned, there are three quality grades, "fresh" or "new laid", then "seconds", and lastly "rejects", and I would like to explain briefly the difference in these three classes. "Fresh" or "new laid" eggs when subjected to the light test, are eggs which are free from blemish, and in which the albumen or white is clear in appearance, and the yolk keeps well to the centre of the egg. When the egg is broken out, the yolk is comparatively small and sitting well on the top of a firm jelly-like white. You should

also bear in mind, that with the exception of a small percentage of what might be termed abnormal eggs, all eggs when laid have this appearance and, if properly handled, will reach the consumer in this state. It is only when eggs are badly treated that they rapidly become "seconds" and "rejects".

There are various types of "seconds" and it is usually possible to judge from what eggs look like in the light test, in what way they have been mis-handled. If the eggs have been "held" or kept for a considerable time, evaporation of the contents takes place, and the air cells become large. If "seconds" are caused by washing or unsuitable storage, the shells are mottled and, of course, the quality of the eggs rapidly deteriorates. If eggs become "seconds" because of partial incubation, the white is found to be cloudy in appearance and, if fertile, the germ spot in the yolk is developed and plainly visible.

"Rejects" are eggs which have either become bad with various types of rot, or are in such a poor condition that they are not likely to reach the consumer through the ordinary channels of trade in a fit state to be eaten. Sometimes "rejects" are fertile eggs that have been incubated to a point where the blood ring or blood veins can be seen.

Having said so much about the effects of careless handling, I am sure you will be interested to know how the mistakes to which I have referred have been made, and how they can be prevented. First of all, there are the fertile eggs, which are a great source of trouble, particularly during hot weather. A fertile egg begins to incubate at a temperature much below blood heat, and you can easily imagine, therefore, what happens when eggs are not collected regularly and often from the nests. With several hens using the same nest, the eggs get enough heat to bring the fertile germ to life, and when the egg cools off the germ dies and decay sets in. It may even happen that the germ is brought to life by kitchen heat, by washing in warm water, or by being exposed to the sun's rays or heat in any form. Allowing broody hens to sit on nests is a common cause of the production of eggs of second quality. An infertile egg will keep better under similar conditions, but I don't want you to make the mistake of thinking that infertile eggs can be subjected to heat without suffering injury. The remedy for this type of trouble is simple—separate or dispose of male birds after April, and collect eggs from the nests at frequent regular intervals.

Washing of eggs is another very harmful practice, as it removes the colloidal deposit or "bloom" from the shell. This coating is a very thin natural film which seals the pores in the shell. When eggs are washed or steeped in water this coating is destroyed, the pores are opened, evaporation takes place rapidly, and such eggs soon become unfit to be included in first quality. All this can be prevented by providing suitable nests, keeping the nests and ap-

proaches clean, and again collecting the eggs often. The extra time taken to collect the eggs from the nests will be more than saved by not having them to clean. If eggs do require cleaning it should be done immediately they have been taken from the nests: the sooner an egg is cleaned the better—as the process is easier and the effect is less injurious. A soft cloth rung out of clean, cold water is all that is necessary for wiping the egg clean. When wiped, the egg should be dried at once with a clean, dry cloth. A little salt or baking soda may be needed to remove stains, but this should only be used sparingly and in exceptional cases. In no circumstances should eggs be washed or steeped.

Storage, or the place where the eggs are kept between the time of collection from the nests and sale to the collector, is very important, and more harm is usually done by keeping eggs in kitchens than by anything else. From the time the eggs are collected keep them away from any hot room or sunlight, and store in a cool place, but make certain it is not damp or musty.

To sum up. Most of the faults which I have pointed out could be remedied by systematic collection from clean nests, storage in a cool, dry room, and separating male birds from flocks in the summer time. In this way eggs do not require cleaning, and the absence of heat from any source keeps them in good condition. Where these hints are observed, and supplies are marketed frequently, eggs will be almost 100 per cent. first quality. This will not only give the satisfaction and confidence that comes with the knowledge that a good article has been provided, but it will also enable Northern Ireland to maintain and increase its lead in the British market.

It may interest producers as well as consumers to know that the Marketing of Eggs Act, 1936, provides power to prohibit retailers from exposing eggs outside or in shop windows, or anywhere likely to injure their quality or cause the shells to become soiled, stained or dirty. This method of exposing eggs for sale has been a serious cause for complaint by the more progressive retailer as well as by the producers and consumers, and is bad for both the quality and appearance of the eggs.

THE MINISTER'S TOUR IN AUSTRALASIA.

Reprint of his broadcast talk in New Zealand.

What do you think of our country? That is the question asked of any stranger arriving in every land, and it is a sign, to my mind, not only of very natural curiosity but also of pride in the home country. It is also a desire on the part of those who have not left their own country to see through someone else's eyes how it strikes those from lands beyond the sea.

I always feel that before a traveller arrives at a new place he should, for his own later interest, write down on paper what he expects that country will be like. This was not necessary in my case because I had already received from Lord Craigavon, the Prime Minister of Northern Ireland, who came here some years ago, a very detailed description not only of the beauty of New Zealand but of your wonderful land and splendid people, and I was not disappointed at the reality. As Minister of Agriculture, I was particularly interested in that side of the industry, and I should like to tell you very shortly a little of what I have seen. One of the first things I did on landing at Auckland was to visit a farm of 20 acres owned by an ex-artificer of the British Navy. I was immensely struck by the wonderful pasture and by the healthy appearance of his stock, but as soon as he realised that I took a deep interest in pasture improvement and in new grasses he bade me get down on my knees with him and look closely at the very finest grass New Zealand could grow. That man was a real enthusiast, and he, on his small farm, was getting as great a kick out of life as the owner of many millions of pounds or the greatest industrialist in the land. What more can one have of life than that?

I think perhaps the thing which strikes a stranger with more force than anything else, is the wonderful progress that has been made in such a comparatively short time, and I saw, during my visit to some of the reclaimed pumice land near Rotorua, an example of this which can only be described as startling. On one side of the road was impenetrable bush of "tea tree" growing on apparently completely sterile land. On the other side were smiling fields with stock up to their knees in clover and succulent grasses. The courage and foresight of the men who undertook this vast task has been amply rewarded though the beginning looked so exceedingly unpromising. The difficulty of the communal ownership of Maori farms has been overcome by individualising them in this instance, and I was greatly struck by the energy of the new owners and the obvious pride and joy which they took in their work. One of the cowsheds which I inspected would, in fact, be an example to anyone in the Old Country.

I cannot leave the district of Rotorua without mentioning its Mayor. I think probably nowhere else in the world would a visitor find his Worship just

about to depart on his evening milk round, ready and able to turn back, and after discussing agriculture with me, jump on to his horse and give an exhibition of jumping over wire fences, which, I must confess, I should not like to face myself. At any future Mayoral banquets which I may attend I propose to suggest to their Worships that a demonstration of this sort should be made obligatory to all City fathers.

It goes without saying that the dairying industry of New Zealand probably leads the world. The organisation for collecting, handling and marketing milk products appears to be most efficient, and I learned a great deal from visits to Butter factories whilst on my travels. Like ourselves in Northern Ireland, New Zealand is dependent upon a good grass supply which, indeed, is the most important crop that any farmer can grow; and I can safely say that I was astounded with the wonderful pastures which have been produced here.

The research work under the Government seems to me to be most progressive and is striving to solve problems of grass and pasture management which few farmers could afford to do by themselves. In fact, I was so much struck by what I saw that I have asked for some of the newer seeds in order that they may be tried out by the Plant Breeding Establishment of my Ministry in Northern Ireland.

I may perhaps have dwelt rather long on a subject which is an absorbing one to me but I should not be doing justice to New Zealand if I did not tell you what I thought of your wonderful scenery and the beautiful sights. On seeing the thermal regions of Rotorua and Wairakei the stranger is struck with feelings of awe. Indeed it is hard to grasp that such forces are continually so active near the surface of the earth. The first night I arrived at Rotorua I had the privilege of attending a Maori concert and for some time I was considerably disturbed by what I thought was the foul pipe of my neighbour. I could hardly believe that even the most ardent smoker could smoke such terrible tobacco. However, on turning round I noticed that one leg of my chair was on the edge of a miniature volcano which was puffing sulphur smoke into my face. Where else could that happen whilst listening to a concert! It would be a mere waste of time were I to describe all the details which you probably know better than I do, but the whole effect is quite unforgettable.

One of the most pleasing features is how very unspoilt, on the whole, the sights of New Zealand are—commercialising and over-emphasis has ruined many a beauty spot elsewhere, alas!

You have here an asset which few countries can equal, and it brings to your shores many visitors who love wild and beautiful country and are quite prepared to spend their money on your unique "invisible export", if I may term it so.

Then again, to anyone who like myself is an ardent fisherman and who had looked forward for many months to the pleasure of fishing your waters, the sight of the lakes and streams was a delight to the heart. Down the Waikato River—a beautiful stream and a lovely journey—then up again searching for the monsters that lay lurking in the water mosses and weeds, then finally the lucky cast and the grand fight of a lively fish. Before I go to sleep each night I frequently go over the events of the day and I can assure you that the memory of that fishing will accompany me very often to bed.

My visit to this Dominion has impressed upon me the great importance, nay, the urgent necessity, of a close personal contact between all of us Britishers wherever may be our Homeland.

Misunderstandings and wrong impressions are liable to occur in every family, but these can usually be adjusted when the members of that family are in a position to appreciate each other's point of view. I think it can be taken as a general rule that though first impressions of an individual may be bad, subsequently when we get to know him better we find many qualities which before lay hidden. I have now visited every Dominion and I can say without fear of contradiction that Britishers all the world over are the same. We talk the same language, we have the same ideals, we have our faults and our good points and the latter prevail. That is why I feel that we must get to know each other better so that when the time of stress is upon us we can face the world as one united family.

New Zealand is in many ways very like my own Northern Ireland. It is often overlooked that even in Industrial England agriculture is still the biggest industry, and produces more primary products than any Dominion. In fact, it buys more from British Industry than the whole of Africa and Asia put together. It is not, even in England, a dying industry though people are sometimes inclined to say so, but for Northern Ireland it is our life's blood—for our agricultural output amounts to no less than 15 million pounds per annum, and our population is about the same as yours. Hence as your problems are to a great extent our problems, my visit here has been of absorbing interest, and I shall follow your progress as time goes on with sympathy and understanding quickened by my delightful tour in your Dominion.

THE GRADE AND DEAD WEIGHT SCHEME.

2. SHEEP AND LAMBS.

An article in the February issue of this Report dealt with the sale of cattle under the Grade and Dead Weight Scheme. The procedure is the same where sheep and lambs are concerned, except that the particulars required regarding the animals for sale naturally differ in certain respects. As in the case of cattle, the Association Secretary gets in touch with the English Ministry's Head Meat Grader at one of the recognised centres, and applies for a quotation, furnishing the necessary particulars regarding the animals he wishes to sell. The Head Meat Grader then secures quotations from the various wholesale carcase butchers and forwards the best of them to the Association Secretary, who has to decide whether, after allowing for the cost of carriage, the quotation is sufficiently favourable as compared with the ruling local prices. If he decides to accept he informs the Head Meat Grader accordingly, and the latter then sends instructions about the date on which the animals are to be loaded, the way in which they are to be marked, and the address of the wholesale carcase butcher to whom they are to be dispatched. The transport charges as far as the railway station of arrival are paid by the Association Secretary, but the wholesaler arranges for the animals to be met and pays for the droving charges. In accordance with the recognized market custom, payment is made within 48 hours of the animal being graded by the Ministry's Head Meat Grader, who also superintends the weighing. Quotations are in terms of lb. dead weight (sinking the offal) and take account of the grades and weight ranges reached by the animals. A quotation for lambs might read as follows:—

Weight		Grade 1		Grade 2		Grade 3
32 lb. and under	..	1/1	..	1/0 $\frac{3}{4}$	..	1/0 $\frac{1}{2}$
32-40 lb.	..	1/0 $\frac{1}{2}$	..	1/0 $\frac{1}{4}$	..	1/-
40-48 lb.	..	1/0 $\frac{1}{4}$	..	1/-	..	11 $\frac{3}{4}$ d.

On the average sheep and lambs kill out at 50 per cent., so that a Grade 1 animal weighing 64 lbs. alive would fetch 34/8d., whereas an 80 lb. animal classified as Grade 2 would fetch 40/10d. Full details of the definitions of the various grades are given in the English Ministry's Marketing Leaflet No. 46.

Ungradeable carcasses (and in this class are included animals wrongly described) are disposed of on commission. In connection with quotations for lamb carcasses it should be noted that there is no uniform standard for dressing with the result that the dead weight of lambs varies from centre to centre. However, Marketing Leaflet No. 46 gives full particulars of the respects in which practice at one market differs from that at another.

Insurance, as in the case of cattle, is effected for a cost of 3 $\frac{1}{2}$ d. per head and covers both transit risk and the risk of condemnation for disease by the Public Health Authorities. Threepence per lamb or sheep is also deducted to cover the Ministry's grading charges. Carriage may be expected to amount

to about 4/6d. per animal, so that the total charges should be in the neighbourhood of 5/- per head.

Farmers who desire to give the scheme a trial should get in touch with their local Association Secretary, and arrange to send some animals under the Grade and Dead Weight Scheme. It is not claimed that where local prices are good the prices under the Scheme will be better. The Scheme does, however, offer an alternative outlet under which prices offered can be compared with those prevailing locally and in any case there is no obligation to sell if the quotations offered are not satisfactory. A postcard to the Head Meat Grader will close the whole transaction without loss to either party.

PIG BREEDING IN NORTHERN IRELAND.

As pig keeping now occupies a major position in the agricultural economy of Northern Ireland it may be of interest to review the vicissitudes of this branch of our farming industry since 1847, the first year for which official figures are available.

It is of course well known that extremely wide fluctuations in the number of pigs may and do occur from year to year, and that an increase in numbers can be effected in a relatively short period of time.

The figures given in the following table are the averages of ten year periods, as a clearer picture of the changes which have occurred over the long term period of 90 years may thereby be obtained. The maximum and minimum population within each of the ten year periods is also given as an indication of the wide variation in numbers which occurred.

	Average number of pigs.	Maximum number	Minimum number
1847-56	171,861	246,667 (1854)	80,693 (1847)
1857-66	203,874	261,006 (1866)	154,741 (1863)
1867-76	204,927	296,618 (1871)	118,578 (1868)
1877-86	209,092	259,689 (1882)	121,791 (1880)
1887-96	256,063	284,175 (1890)	208,085 (1892)
1897-06	228,909	263,441 (1897)	204,307 (1901)
1907-16	207,553	254,928 (1911)	165,835 (1913)
1917-26	126,794	195,789 (1923)	102,000 (1920)
1927-36	295,927	521,654 (1936)	192,058 (1929)

The wide fluctuations within the different 10 year periods may be observed from the figures showing the maximum and minimum numbers in each period. The most marked fluctuations occurred in the period 1867-1876, when within the space of three years the number of pigs increased by 150% followed by a decrease of almost 50% within a period of two years (1873). Again in 1882 the number of pigs recorded (259,689) was 113% greater than in 1880. In the periods 1887-96 and 1897-1906 the number of pigs remained at a consistently high level. In fact in no one year between 1882 and 1907 did the number fall below 204,000, and in only 3 of the 26 years did the number fall below 210,000. In the second of these periods, however, a tendency for the numbers

to decline appeared, and in the following period, 1907-1916, the numbers in 4 of the years fell below 200,000. The effects of the war were seriously felt in 1917, when only 103,324 pigs were recorded, and although the number rose to 115,305 in 1918, and was estimated at 118,000 in 1919 the population fell to 102,000 in 1920—the lowest number of pigs recorded in Northern Ireland since 1847. In the following year a definite tendency to increase set in, but the low level in the number of pigs in the years immediately following the war is shown by the figure of 126,794, which was the lowest average number recorded in any ten year period. From 1927 to 1932 the number remained fairly constant at between 192,000 and 236,000. In 1932 the number was 219,767, and in the following year the Pigs Marketing Scheme was introduced. The number of pigs recorded in 1933 was 270,565, and since that year the number has shown successively large increases. In 1934 the number was 380,348, in 1935, 457,878, and in 1936, 521,654. It is interesting to note in connexion with these figures that prior to 1934 the highest number of pigs recorded in Northern Ireland in any year was 296,618 (in 1871), and that only on twelve occasions was a population of 250,000 exceeded. The pig population at the recent census taken on the 1st January, 1937, was 559,842.

MARKETING SCHEMES.

AGRICULTURAL MARKETING (PIG INDUSTRY) ACT (N.I.), 1934 :—

PIG PRICES FOR MAY, 1937.

The following announcement was made by the Pig Industry Council for Northern Ireland.

PRICES FOR DEAD PIGS.

The prices per dead cwt. for dead pigs sold by producers to curers in Northern Ireland, in May, 1937, are as follows :—

Weight Class. (Dead Weight).	Grade 1.	Grade 2.	Grade 3.		Partly Black pigs.
c.1.0.21 to c.1.2.3 ..	70/11	67/11	64/11		5/-
Weight Class. (Dead Weight.)	Grade A.	Grade B.	Grade C.	U.L. or U.F.	below relevant Grade Price.
c.1.2.4 to c.1.2.14 ..	70/11	67/11	64/11	61/11	
c.1.2.15 to c.1.3.14 ..	70/11	67/11	64/11	61/11	
c.1.3.15 to c.2.0.0 ..	67/11	64/11	61/11	58/11	
c.2.0.1 to c.2.0.14 ..	61/11	58/11	55/11	52/11	

Pig carcasses under c.1.0.21 :—59/11.

U.L.—Under Grade A. measurements.

U.F.—Over Grade C. measurements.

Authorised cuts :—

- (a) Broken ham (dry, shank and/or shell bone break)—5% of the gross value of the carcase.
- (b) Broken ham (wet break)—12½% of the gross value of the carcase.
- (c) Shoulder-stuck carcase—3/- per shoulder affected.

The gross value of a carcase is the product of the dead weight and the relevant grade or other price per cwt.

Where portion of a pig carcase weighing not more than c.2.0.14 is condemned and the existence of disease could not reasonably have been known to the producer before despatch to the curer the appropriate grade price shall apply. If the carcase is wholly condemned on account of disease, the existence of which could not reasonably have been known to the producer before despatch to the curer, the relevant Grade 2 or Grade B price shall apply.

The foregoing prices do not apply in the case of (a) wholly black pigs, boars, rigs or stags, sucked sows, and pig carcasses weighing over c.2.0.14, and (b) pigs visibly diagnosable as diseased before despatch by the producer and subsequently condemned; emaciated or screw pigs; smelling pig carcasses with definite indications of putrefaction, and pig carcasses badly abused or damaged before being handed over by the producer to the curer.

PRICES FOR WILTSHIRE PIGS SOLD ON DIRECT CONTRACT.

In the case of pigs sold alive under direct contract to Wiltshire curers the prices per dead cwt. payable for pigs delivered in respect of the month of May, 1937, are as follows :—

Weight Class. (Dead Weight.)	Grade 1.	Grade 2.	Grade 3.	Unsuitable.
Under c.1.0.21 ..	63/11	63/11	63/11	61/11
c.1.0.21 to c.1.2.3 ..	74/11	71/11	68/11	61/11
c.1.2.4 to c.1.2.7 ..	Grade A. 71/11	Grade B. 68/11	Grade C. 65/11	U.L. or U.F. 62/11
Over c.1.2.7 ..	On the same basis as pigs sold dead.			

PRICES FOR LIVE PIGS SOLD TO THE PIGS MARKETING BOARD
(NORTHERN IRELAND).

In the case of pigs sold alive to the Pigs Marketing Board during May, 1937, the prices, according to grade, are as follows :—

Live Weight.		Grade 1.	Grade II.	Grade III.	Unsuitable.
Under c.1.2.14	..	48/-	48/-	48/-	46/6
c.1.2.14 to c.2.0.0	..	56/3	54/-	51/9	46/6
c.2.0.1 to c.2.1.14	..	53/3	51/-	48/9	45/6
c.2.1.15 to c.2.2.7	..	51/-	48/9	46/6	44/3
c.2.2.8 to c.2.2.21	..	46/6	44/3	42/-	39/9

These prices do not apply to live pigs over c.2.2.21, live pigs intended for breeding, live boars, live sucked sows, rigs or stags, injured or diseased pigs, live in-pig gilts, or live pigs sold (on contract registered with the Pig Industry Council) to curers in Northern Ireland. All other live pigs inside the weights c.1.2.0 to c.2.2.21 can be sold only to the Board.

AUTHORISED DEDUCTIONS.

Every pig (dead or alive) sold to a curer or to the Pigs Marketing Board is subject to a contribution at present amounting to 1/-.

In addition to this amount, a deduction of 4d. per pig may be made in the case of sales to curers to cover insurance, so that the producer will not suffer financial loss if the carcass is condemned as unfit for human consumption.

In the case of pigs sold to the Board, there is a deduction of 2/6d. per pig for marketing charges.

COST OF STANDARD PIG RATION.

The average retail cash price per cwt. of the standard ration for the sixteen weeks' period ended 24th April, was 9/11d. This figure has been calculated by the Ministry from returns collected from 10 representative centres in Northern Ireland.

The following is the ration upon which the feeding cost is based:—

Maize Meal	...	...	...	30%
Barley Meal	...	...	...	30%
Pollards (White)	...	...	...	20%
White Bran	...	...	...	10%
Meat Meal (60% Protein)	...	...	...	10%

GRADING STATISTICS.

Table showing the percentages of pig carcasses falling within the weight and grade classes indicated during March, 1937.

Under c.1.0.21.				c.1.0.21. to c.1.2.3.				Totals			
Suitable		Unsuitable		Grade 1	Grade 2	Grade 3					
2.40		.41		6.02	6.63	6.50	.06	22.02			

Grade A.				Grade B.				Grade C.			
1	2	3	4	1	2	3	4	1	2	3	4
11.01	17.56	2.21	.43	8.26	18.06	3.36	.81	3.11	8.30	1.05	.25
											74.41

UNGRADED CARCASSES.											
Under Grade A measurements. U.L.	Over Grade C measurements. U.F.	Wholly condemned. U1.	Wholly black, injured or damaged. U2.	Overweights, boars, sows, etc. X.	Partly Black. Y.						
.04	2.28	.04	.43	.74	.04						
					Total	100%					

These figures have been calculated from the purchase and grading statements which the curers furnish to the Ministry.

The average price paid to producers for pig carcasses during the month of March works out at £5 7s. 10d., the average weight at c.1. 2q. 15lb.; and the average price of pork at £3 5s. 8d. per cwt.

The following table gives the percentage results of an analysis of the purchase and grading statements furnished by Wiltshire bacon curers in respect of live pigs delivered on direct contract by producers during the month of March, 1937.

Weight Class.	Grade 1.	Grade 2.	Grade 3.	Unsuitable	Total.
Under c.1.0.21 ...	.25	1.57	.04	—	1.86
c.1.0.21 to c.1.2.3	43.26	36.07	12.06	.35	91.74
	Grade A.	Grade B.	Grade C.	U.L. or U.F.	
c.1.2.4 to c.1.2.7 ...	1.02	1.28	.68	.11	3.09
c.1.2.8 to c.1.3.14 ...	.96	1.36	.90	.09	3.31
Totals ...	45.49	40.28	13.68	.55	100.

The average net price per cwt. in respect of these deliveries works out at £3 11s. 9d. after making allowance for insurance and contribution to the Pigs Marketing Board.

The average weight works out at c.1.1.16, the net average price per pig being £4 19s. 10d.

THE CATTLE INDUSTRY (EMERGENCY PROVISIONS) ACTS, 1934 AND 1935.

The latest returns received from the Cattle Committee show that the total payments made in the United Kingdom under the Acts up to and including 1st May, 1937, amount to £9,917,812 10s. 0d., and were in respect of 4,193,391 head of cattle certified on a live weight basis. The distribution of these payments was as follows :—

	No. of Animals.	Amount Paid.		
		£	s.	d.
England and Wales	2,960,297	7,020,960	7	6
Scotland	901,705	2,204,198	17	6
Northern Ireland	331,389	692,653	5	0

The average payment made per head of cattle for the whole of the United Kingdom was £2 7s. 4d., comparing with £2 7s. 5d. for England and Wales ; £2 8s. 11d. for Scotland, and £2 1s. 10d. for Northern Ireland.

During the week ended the 1st May, subsidy payments for the United Kingdom covered 35,896 animals, of which 2,942 were from Northern Ireland. The average price per head of the Northern Ireland cattle was £16 13s. 0d., the average weight 8 cwt. 0 qr. 17 lb., and the average price per live cwt. 40/10d ; comparing with £13 3s. 0d., 8 cwt. 0 qr. 24 lb. and 32/1d. respectively for the corresponding week in 1936.

WHEAT ACT, 1932.

SUSPENSION OF QUOTA PAYMENTS.

The Minister of Agriculture and Fisheries, in pursuance of the powers conferred upon him by the Wheat Act, 1932, and on the recommendation of the Wheat Commission, has made an Order, the Wheat (Quota Payments) No. 2 Order, 1937, suspending the liability of millers and importers of flour to make quota payments under the Wheat Act. The Order comes into operation on Sunday, 18th April, 1937, and remains in force until such time as a further Order is made. No quota payments need, therefore, be made, until further notice, in respect of flour delivered on or after 18th April, 1937, and similarly no refund of quota payment will be made by the Wheat Commission in respect of flour or bread exported on or after that date.

The making of this Order does not imply that no more deficiency payments are to be made to registered growers in respect of sales of home-grown millable wheat during the present cereal year ending July 31st. Deficiency payments would only cease to be payable in respect of home-grown millable wheat sold in any cereal year if the ascertained average price of home-grown millable wheat for the year rose to approximately 10/- a cwt. The average price to date for the current cereal year is appreciably below that figure, and, in accordance with previous announcements, the Wheat Commission have just made an advance payment to registered growers on account of deficiency payments for the current cereal year at the rate of 8d. per cwt. (equal to 3/- per qr. of 504 lbs.) in respect of proper applications received from registered growers on valid wheat certificates delivered to the Commission not later than March 18, 1937. The present Order of the Minister is based on a calculation that the surplus in the Wheat Fund, as shown by the accounts for the cereal year ended 31st July, 1936, together with the quota payments which have accrued since, will be sufficient to provide for deficiency payments in respect of the current cereal year, and for the other expenditure of the Wheat Commission attributable to that year. The date of the reintroduction of the quota payment depends primarily upon the future course of prices of home-grown millable wheat sold by registered growers in the United Kingdom.

The following statement shows how the rate of quota payment has varied since the Wheat Act came into operation in 1932, and in particular how the rate has been reduced in recent months concurrently with the rise in the price of wheat.

Date on which new rate of quota payment came into operation.	Rate of Quota Payment.	
	Per cwt.	Per sack of 280 lb.
19th June, 1932	10.8d.	2/3
30th October, 1932	13.2d.	2/9
2nd August, 1933	16.8d.	3/6
5th November, 1933	21.6d.	4/6
12th August, 1934	19.2d.	4/-
17th March, 1935	21.6d.	4/6
29th September, 1935	19.2d.	4/-
3rd November, 1935	16.8d.	3/6
23rd February, 1936	14.4d.	3/-
9th August, 1936	9.6d.	2/-
1st November, 1936	4.8d.	1/-
27th January, 1937	2.4d.	6d.
18th April, 1937	Quota payments suspended.	

BUTTER AND CREAM MARKETING SCHEME (NORTHERN IRELAND) 1936.

The election of the additional member to the Butter and Cream Marketing Board (Northern Ireland) by owners or occupiers of privately owned cream-

eries was carried out in accordance with the provisions of the Butter and Cream Marketing Scheme (Northern Ireland), 1936, and the Amendment (No. 1) Order, 1937, thereto. Only those creameries which were privately owned or occupied, and which were registered in accordance with the terms of the Butter and Cream Marketing Scheme were entitled to vote in the election. The number of such creameries was 12, and voting papers were despatched to each of them on 28th April last. Each elector was entitled to give a number of votes equivalent to the number of gallons of milk received by his creamery during the calendar year 1936 for the purpose of the extraction of cream for sale as such, or for manufacture into butter, during that year. Two candidates only were nominated for election, namely Mr. William McAdam, "Thistlebank", Enniskillen, County Fermanagh, and Mr. Edmund William Ross, Baronscourt, County Tyrone, and the count of the votes was made on 6th May, 1937. The result of the election was as follows:—

1. William McAdam—3,801,180 votes.
2. Edmund William Ross—952,050 votes.

Mr. McAdam was, accordingly, declared elected.

MARKETING OF EGGS ACT (NORTHERN IRELAND), 1936.

PROSECUTIONS FOR UNLICENSED RETAIL TRADING.

During the month of April, 1937, the Ministry found it necessary to institute legal proceedings against two Belfast Shopkeepers for selling eggs by retail without being licensed for that purpose.

Each defendant was convicted and fined £3 and costs.

These were the first prosecutions taken for this offence, and the Ministry again wishes to point out that under the provisions of the above-mentioned Act it is not lawful for a person to sell eggs by retail in Northern Ireland without being in possession of a retailer's licence, unless the eggs have been produced by the person's own fowl.

Forms of application for a licence may be obtained from the Secretary, Ministry of Agriculture, Stormont, Belfast.

AGRICULTURAL NOTES.

SEASONAL FARM NOTES.

CABBAGE, MANGELS AND KALE.—An effort should be made to sow a small area of cabbage and mangels, as advised in last month's Report, before the sowing of the turnip crop is undertaken. Cabbage will supply succulent food for stock during autumn when the grass is becoming scarce and has lost much of its feeding value, while mangels provide useful feeding in late spring when the supply of turnips is finished. Steeping mangel seed for about 24 hours in water before sowing hastens germination and promotes quicker brairding. The Red Intermediate type of mangel has given the heaviest yields in trials carried out in Northern Ireland, while the "Early Drumhead" variety of cabbage is the most suitable for farm use.

Marrow-stem and thousand-headed kale can also be grown for the production of autumn and early winter green food. These crops require similar treatment to cabbage in the way of manuring and rate of seeding, but the plants need not be singled but merely thinned in the rows. Suitable manurial mixtures for cabbage, kale, and mangels are given in leaflet No. 44.

TURNIPS.—Turnip seed germinates most satisfactorily in clean land in good tilth which has not been allowed to become too dry during working operations. If no more drills are opened than can be manured, closed and sown on the same day, the moisture in the soil will be conserved and there will be a better chance of obtaining a good braird and of lessening the risk of attack by the turnip "fly" than where a big area is drilled and the drills allowed to become dry before sowing. Moreover, when a small area is sown at a time, the whole crop will reach the singling or thinning stage at different periods, thus facilitating the carrying out of this work.

The most suitable manurial dressing for the turnip crop is a moderate application of farmyard manure, if available, along with from 4 to 6 cwt. per statute acre of a phosphatic manure, such as superphosphate, high grade basic slag, or Gafsa rock phosphate. Phosphatic manures promote root development in the young plants and are, therefore, of great value in obtaining steady and satisfactory growth after brairding. The manure is best applied on top of the farmyard manure in the drills so that it will be reached soon by the roots of the young plants. If farmyard manure is not available, a dressing per statute acre of from 1 to 1½ cwt. sulphate of ammonia and from 1½ to 2 cwt. 30 per cent. potash salts should be applied, in addition to 6 cwt. of a phosphatic manure.

On land subject to "finger and toe" disease, basic slag, or Gafsa rock phosphate should be used in preference to superphosphate, and farmyard manure

omitted unless such manure has been produced by stock which were not fed on roots affected with the disease. It should be noted that basic slag should not be mixed with sulphate of ammonia, but should be applied separately; if mixed, there will be a serious loss of the fertilising properties of the sulphate of ammonia. Gafsa rock phosphate and sulphate of ammonia may be mixed prior to application, but the mixture should be applied immediately after mixing.

Some varieties of turnips will produce higher yields than others, and the Agricultural Instructor will advise regarding the varieties most likely to succeed best in a particular district.

OATS.—A watch should be kept for attacks of leather-jacket grubs in oat brairds, especially on land following old pasture. If, in the case of well-drained land, the braird is turning yellow or failing in patches, attacks of this pest should be suspected and a poisoned bait applied immediately. For this purpose a bait composed of 1 lb. Paris Green and 28 lb. bran applied at this rate per acre has given good results. The Paris Green should be thoroughly mixed with the bran, and the mixture moistened with water, to which a little treacle has been added. The bait should be broadcast evenly over the braird in the evening. It is important that the bait should be applied IMMEDIATELY attacks are observed and BEFORE extensive damage to the crop has occurred. Delay in applying the bait may result in much injury to the crop, and in reduced yields being obtained. As Paris Green contains arsenic, it is extremely poisonous and, accordingly, the greatest care should be exercised in its use. Further particulars on the control of leather-jacket grubs are given in Leaflet No. 22.

It should be noted that the Paris Green and bran bait will not control the ravages of wireworms in oats. These pests, unlike leather-jackets, do not come to the surface to feed but live well below ground and feed upon the roots of the plants. Where attacks of wireworms are suspected, the braird should be heavily rolled, as rolling restricts the movements of the pests and aids in controlling attacks. An application of a nitrogenous manure, such as sulphate of ammonia, nitro-chalk or nitrate of soda, at the rate of 1 cwt. per statute acre, is also useful in cases of severe attacks, particularly on the poorer classes of soils, as it hastens the growth of the oats beyond the stage at which wireworms cause damage. On rich soils, however, there is a danger of the crop lodging if a nitrogenous manure is applied.

DESTRUCTION OF CHARLOCK.—The destruction of charlock ("preshaugh") in oat and flax crops should be carried out before the weeds reach the flowering stage. Spraying with a solution of copper sulphate (bluestone) provides a most satisfactory method of control under ordinary farm conditions. For

charlock in oats, a 3 per cent. solution (12 lb. copper sulphate in 40 gallons water) should be used, while for flax a $2\frac{1}{2}$ per cent. solution (10 lb. copper sulphate in 40 gallons water) is suitable. The addition of about 2 stones of nitrate of soda to each 40 gallons of solution has been found to be very beneficial on weakly brairds and where charlock has seriously checked the growth of the crop.

Many farmers do not realise the extent to which charlock is present until the familiar, yellow-coloured flowers have appeared. Spraying even at that stage, provided the flowers have not started to fall off, has given good results. It should be realised, however, that the longer the weeds are permitted to grow the more harm they will have caused to the crop, and that the greatest injury is caused while the crop is in the early stages of growth. Moreover, the longer spraying is delayed the greater is the likelihood of causing damage to the crop when spraying is being done. It will be obvious, therefore, that early destruction of the weed is advisable. Young charlock plants are very similar in appearance to young turnip plants, and farmers should learn to identify the weed at this stage so that spraying can be undertaken early. Further information on the destruction of charlock is given in Leaflet No. 38.

DESTRUCTION OF RAGWORT.—Ragwort (“ragweed” or “benweed”) in pasture can be kept in check by grazing sheep on the land now. Sheep will eat ragwort readily when the plants are young, but once the hard, coarse flowering stems have developed they will leave the weeds untouched. Where it is not possible to graze sheep on the land, ragwort may be eradicated by hand pulling when the ground is soft. Persistent cutting will also keep these weeds in check, but pulling is to be preferred. Information relating to the eradication of ragwort is given in Leaflet No. 55. It should be remembered that it is an offence to permit ragwort plants to flower and seed.

PASTURES.—Newly-laid down pastures should not be grazed too closely early in the season, as this may check seriously the development of the permanent species of grasses and clovers and result in the sole remaining thin and in a backward condition throughout its life.

SEASONAL LIVESTOCK NOTES.

Pigs.—It is reported that some pig carcasses recently marketed were of the soft, oily type. The bacon from such carcasses is of an undesirable quality which will react most unfavourably on the development of the pig industry. While breeding from pigs of suitable type is the first essential in obtaining quality in the finished product, correct feeding during the fattening stages is of equal importance. Good quality bacon will not be produced even from pigs

of good type unless they are suitably fed and producers are strongly urged to guard against the use of foods in rations which tend to have a deleterious effect on bacon quality. Foods, such as fish meal, meat meal of high oil content, linseed cake meal, rice meal, maize germ meal and cod liver oil, are likely to produce soft, oily bacon with undesirable taints after curing and, accordingly, should not be included in meal mixtures for fattening pigs. It should be borne in mind also that the use of a meal mixture containing more than 40 per cent. (4 parts in 10) of maize meal or other maize products, or of one containing excessive quantities of pollards is liable to cause soft, oily bacon. The use of excessive amounts of green food may also have an adverse effect on bacon quality, and the quantity fed should be reduced, or green food omitted entirely, during the month prior to slaughter. On the other hand, barley meal and tapioca root flour tend to produce bacon with firm white fat—the quality the consumer demands—and one or other of these foods should be included in the meal mixture. Examples of suitable meal mixtures for the production of carcasses of good quality are given in Leaflet No. 35, and producers should endeavour to adhere to the rations given or to those of similar type. Where ready-mixed rations are being used careful inquiry should be made regarding the quality of the ingredients included in them. A good ration cannot be made from inferior ingredients even though the ingredients are included in the correct proportions.

OX WARBLE FLY.—In accordance with the Ox-Warble Fly Order the third application of a suitable Derris wash should have been applied to cattle between the 10th and 17th May, while the fourth and final dressing should be given between the 7th and 14th June. Readers are again reminded that it is an offence against the Order if the dressings are not applied during the specified periods. Moreover, if dressing is not done during the proper time, some of the maggots will escape and produce a new brood of flies, thus perpetuating the pest and delaying its complete extinction. All cattle owners should, therefore, in their own interests comply strictly with the terms of the Order.

Seven Derris preparations, the names of which were given in last month's Report, are recommended, and supplies of these can be obtained from most chemists. Particulars regarding the preparation and application of these washes are given in Leaflet No. 64 and in Circular No. 13.

FEEDING OF CATTLE ON GRASS.—Where it is intended to fatten cattle on grass it should be noted that, as young grass is rich in protein matter, an allowance of starchy foods, such as maize meal or crushed oats, or a mixture of both, will supply all the additional nutrients necessary. The feeding of expensive cakes or meals, rich in protein, is a wasteful practice under such circumstances. Feeding troughs of good width should be provided for cattle on grass, as otherwise much of the meal given is liable to be lost.

Similarly, with dairy cows good young grass will supply sufficient food materials to maintain the yield of the average milker, and it is only in the case of heavy milking cows, or where the pasture is of poor quality, that the feeding of meals during the early part of the grazing season is necessary.

WATER SUPPLY ON PASTURE.—An adequate supply of fresh, clean water is essential for stock on pasture during the summer months. Watering places should be thoroughly cleaned out at the commencement of the grazing season and rails erected, if not already provided, to prevent the cattle from standing in and fouling the water.

BREEDING BULLS.—During the summer bulls should be allowed out on grass, but a mixture of meals should be fed in addition to the pasture. A mixture of equal parts crushed oats, maize meal and bran is suitable for this purpose. Advice relating to the feeding and management of breeding bulls is given in Leaflet No. 61.

SHEEP.—The clipping of sheep of lowland breeds will commence this month. The present prices obtainable for wool merit particular attention being paid to the clipping, and to the handling and care of the fleeces. To prevent waste and to obtain best prices for wool, clipping should be done under as clean conditions as possible, the fleeces graded properly, and loose wool and dirty locks kept separate from fleece wool. The sheep should be kept on a bare pasture during the night before clipping commences as there is a risk of causing injury to heavy fat sheep during clipping if they have full stomachs. Full particulars regarding the care and handling of wool are given in Leaflet No. 23, which has been revised recently.

The mouths and feet of ewes should be examined at shearing time. Those having "broken" mouths should be specially marked and fattened off while rearing their lambs.

SEASONAL GARDEN AND ORCHARD NOTES.

SPRAYING OF APPLE TREES.—The third application of Bordeaux mixture for the prevention of apple scab disease should be given to apple trees immediately the petals begin to fall. If aphides, apple suckers, or capsid bugs are present 6 fluid oz. of nicotine or 8 fluid oz. of nicotine sulphate should be added to each 40 gallons of the spray mixture.

VEGETABLES.—Plants of broccoli, Brussels sprouts, savoys and borecole should be planted out now in well-cultivated, moderately rich ground. For the first two, the ground should be made firm so as to encourage slow, sturdy growth of the plants. Cauliflower plants should also be planted out now in

rich, deeply-cultivated ground. Peas should be staked before the plants actually need support, but before doing so a little soil should be drawn up to the plants on each side of the rows. Celery should now be ready for planting out in trenches, or, in the case of the self-blanching kinds, in beds of well manured soil. Celery requires liberal feeding and should be kept growing steadily without a check. It should, therefore, be well watered during dry weather. Early-sown parsnips and turnips should be thinned as soon as the plants are large enough to handle, care being taken not to bend the parsnips over during the process. Further sowings of lettuce, turnips, and late peas should be made for succession. Onions and shallots should receive a dressing of a complete mixture of artificials. The ground between growing plants should be kept frequently hoed. Vegetable marrow plants may be planted out towards the end of May.

CARROT FLY.—If attacks of carrot fly are anticipated, the carrot plot should be treated with crude naphthalene spread broadcast over it at the rate of 1 cwt. per acre. Weekly applications of naphthalene should be given from now until about the end of July.

FLOWERS.—Annual flowering plants such as Clarkia, Godetia, etc., should be thinned out so that they stand 8 to 10 inches apart. Summer flowering bedding plants should be placed in their permanent positions not later than the first week of June. Seeds of wallflowers, forget-me-nots, and Canterbury bells should be sown now.

SEASONAL POULTRY-KEEPING NOTES.

MANAGEMENT AND FEEDING OF PULLETS.—Particular attention to the young growing pullets is necessary at this time so that they will have every opportunity of developing into strong, robust birds. To this end good, clean free range, adequate house room and suitable feeding contribute. Everything should be done to encourage the pullets to range far afield, while artificial conditions of life should be avoided as much as possible. Crowding of the birds in houses is detrimental to normal growth and development and should never be allowed to occur. The slatted-floor type of house is excellent for the accommodation of growing pullets as it provides efficient ventilation and is easily movable. The house should be placed in a field of fresh pasture and moved every day if possible, so as to bring a new portion of the field into range each day and also to prevent the ground around the house from becoming foul and dirty. If the house is moved each day and the birds encouraged to range over the field, the pasture will also benefit considerably from the droppings which will be well distributed. On the other hand where the house is not moved frequently there will be a surplus of droppings in the vicinity of the house which may result in bare patches in the pasture occurring later, while the birds themselves will be more liable to attacks of parasitic diseases.

The nature of the feeding given to the young pullets at this period of development is important as it influences the future well-being of the birds. A meal mash of plain, wholesome food without too much protein supplement, and a daily feed of grain are satisfactory. The feeding should be such as will encourage the production of large frames, instead of forcing the birds to start laying before growth of body and the building up of bodily reserves of vigour have been completed. Particulars of the feeding recommended for pullets were given in last month's Report, and also in Leaflet No. 20.

CULLING OF PULLETS.—While the principal culling of pullets should take place before laying commences and again after the end of the first laying season, a continual watch should be kept on the flock, so that birds which are weakly or unthrifty looking may be removed immediately. It is a mistake to allow such birds to remain with the flock, as they are not likely to prove profitable egg layers and, besides they may be responsible for the spread of disease to the healthy birds.

FATTENING OF COCKERELS.—The cockerels and pullets which have been culled out should be fattened as soon as possible. Fattening will be more rapid if the birds are kept in comparative confinement and food of a fattening nature given. A small run should be fitted around the house to confine the birds to a limited area. A suitable mash for fattening cockerels is equal parts maize meal, pollard and Sussex ground oats, wet with separated milk or with buttermilk.* The mash should be offered in a wet state in troughs, and increased consumption of food and more rapid fattening will be obtained if some additional milk is poured over any food left in the troughs after the birds have been feeding for about twenty minutes. If milk is not available, a little meat meal of good quality should be added to the meal mixture. As milk has a whitening effect on the skin and flesh, as well as encouraging the production of juicy flesh its use in the fattening of chickens is specially recommended.

FEEDING OF LAYING HENS.—Except in the case of heavy-laying pullets which have been in production since last autumn, the proportion of maize meal in laying mashes should now be reduced; the feeding of an excessive quantity of maize during warm weather tends to make older birds overfat, a condition which may lead to many derangements. Where the hens are on free range, the proportion of protein foods in the mash can also be reduced now—about 5 per cent. of such foods in the mixture being sufficient at this season. If separated milk is available, there is no necessity to include any protein foods in mashes for laying hens.

CARE OF EGGS.—The attention of poultry keepers is directed to the care necessary in the handling of eggs during the summer months so that their

quality may not be impaired. The main essentials to the production of first quality eggs during warm weather are the removal of male birds from the laying flock so that only infertile eggs are produced, the removal of broody hens from nests as soon as they are noticed to be going broody and the frequent collection of eggs from nests, proper storage on the farm and marketing regularly.

These points were fully dealt with in a recent broadcast talk from Belfast Station. A reprint of this talk appears on page 19 of this Report.

REARING OF TURKEYS.—The hatching of turkeys will be proceeding on many farms at this time and readers are reminded of the importance of rearing these birds on clean fresh ground and of giving them unrestricted free range after the first week. Green food such as finely chopped nettles, onion tops, chives, lettuce, etc., should be included in the mash during the first few weeks. If these fundamentals are neglected it is impossible to make a success of turkey raising on the average farm. Useful hints on the rearing, feeding and management of turkeys are given in Leaflet No. 37.

THE VALUE OF BRAN FOR EGG PRODUCTION.

In the Ministry's Monthly Report for April, 1936, (Vol. X, No 12), there appeared an article in which the results obtained from experiments on the feeding of laying pullets at Greenmount Agricultural College, were summarised. In one of these experiments a comparison was made between a cereal ration containing approximately 20 per cent. of bran and a cereal ration which was devoid of bran, but otherwise composed of similar ingredients. Further, a comparison was made between the bran and no-bran mixtures when supplemented with from 10 to 12 per cent. protein supplement, and with $\frac{1}{2}$ per cent. common salt, respectively.

The results were surprising. The test commenced on the 23rd October, 1934, and during the 16 weeks following that date the birds fed on the ration containing 20% bran and $\frac{1}{2}$ % salt each laid on the average 15.1 more eggs than those fed on the cereal ration containing no bran, but with the same addition of salt. For the remaining 32 weeks of the test period the average egg production from both these groups was approximately similar. It was found further that the cost of food per 100 eggs produced during the first 16 weeks of the test was $1/1\frac{3}{4}$ d. less in the case of the bran-fed birds than in the group which got no bran.

Similarly, where a high protein food was used instead of salt, the birds which received bran in their ration each laid, during the first 16 weeks of the

test, an average of 22.7 more eggs than those which got no bran, and the cost of food per 100 eggs produced was 1/8d. less.

The tentative conclusions which could be drawn from the results of this initial test were (1) that the addition of a reasonable proportion of bran in a meal mixture for laying pullets increased egg production during the winter months and reduced the cost of producing eggs; (2) that a cereal ration without bran, and having $\frac{1}{2}$ per cent. common salt instead of a protein supplement, was not adequate to support full production, particularly during the winter months, and increased considerably the cost of producing eggs; (3) that a cereal ration without bran and containing 10% meat meal was also inadequate; (4) that even when the ration contained bran, the high protein supplement was superior to the salt supplement to the extent of an average of 7.6 eggs per bird, and of a lowered cost of 6 $\frac{1}{4}$ d. per 100 eggs produced.

A second experiment on practically similar lines was carried out at Greenmount College during 1935/36. This test started on 16th October, 1935, and ended on 15th September, 1936, occupying, accordingly, a period of 48 weeks.

The experiment comprised four groups of Rhode Island Red pullets which were similarly bred, and the feeding, where different, was as follows:—

GROUP 1.—Cereal Mixture without bran, plus $\frac{1}{2}$ per cent. common salt. The cereal mixture was composed of—

4	parts by weight	good grade pollard
3	" "	maize meal
1	" "	Sussex ground oats.

GROUP 2.—Cereal mixture with bran, plus $\frac{1}{2}$ per cent. common salt. The cereal mixture was composed of—

4	parts by weight	good grade pollard
2	" "	bran
2	" "	maize meal.
1	" "	Sussex ground oats.

GROUP 3.—Cereal mixture without bran, plus 10 per cent. meat meal (60% protein). The cereal mixture was the same as that for Group 1.

GROUP 4.—Cereal mixture with bran, plus 10 per cent. meat meal (60% protein). The cereal mixture was the same as that for Group 2.

Groups 1 and 2 thus provided a comparison between bran and no bran in conjunction with $\frac{1}{2}$ per cent. of common salt; groups 3 and 4 a comparison between bran and no bran in conjunction with 10% meat meal; groups 1 and 3 a comparison between salt and meat meal in the absence of bran; and groups 2 and 4 a similar comparison between salt and meat meal in conjunction with bran.

The results are summarised in the following table :—

Groups and Feeding.	Average weight of birds at start of test.	Average weight of birds at end of test.	Average No. of eggs per bird laid during 1st 16 weeks of test.	Cost of food per 100 eggs produced during 1st 16 weeks.	Average total No. of eggs per bird laid during 48 weeks of test.	Cost of food per 100 eggs produced during 48 weeks.
	lb. oz.	lb. oz.		s. d.		s. d.
1. Cereal mash without bran plus $\frac{1}{2}\%$ salt	5 13	5 14	34.3	3 10 $\frac{1}{2}$	182.2	2 5 $\frac{1}{2}$
2. Cereal mash with bran plus $\frac{1}{2}\%$ salt	5 13	6 1	50.0	3 1 $\frac{1}{4}$	191.1	2 6
3. Cereal mash without bran plus 10% meat meal ..	5 9	5 9	52.4	2 10 $\frac{1}{2}$	186.1	2 6
4. Cereal mash with bran, plus 10% meat meal ..	5 8	5 10	60.6	2 9	193.7	2 6 $\frac{1}{4}$

These results, on the whole, confirm those obtained from the first test. Again, the omission of bran, especially where no protein supplement was used, has led to a serious reduction in the number of eggs produced during the winter months. It is seen from the table that in the case of the two groups where salt was the added supplement, the birds fed on the ration containing bran each laid, during the four winter months an average of 15.7 more eggs than those which did not receive bran (the corresponding figure for the previous test was 15.1 eggs). Where, however, meat meal was the supplement, the average increase per bird in favour of the bran group was only 8.2 eggs during the same period, indicating that, in the absence of bran, the salt supplement was less efficient than the meat meal supplement. Further, the salt supplement, even with bran, was less efficient than the meat meal without bran, and considerably less efficient than the meat meal with bran.

It is seen also that, as was the case in the first experiment, the addition of bran led to a reduction in the cost of producing eggs during the winter months, both where meat meal was the supplement and where salt was substituted for the meat meal. Where no bran was fed, however, the cost was 1/- per 100 eggs higher when salt was the supplement than when meat meal was the supplement. (Compare groups 1 and 3).

This extra cost is not due entirely to the fact that less eggs were produced by one mash than by another. Careful records of the quantities of mash consumed by the birds in each group were kept, and it was found that the consumption of mash was higher where salt was the supplement than where meat meal was the supplement. All groups received the same quantity of grain. This finding is supported by the results obtained in an experiment at Dauntsey's School, West Lavington, Wiltshire* in which a comparison was made between a high protein ration, a medium protein ration, and a low protein ration. The high protein ration was composed of an ordinary cereal mixture with 12 per cent. of a mixture of equal parts of fish meal, meat meal and soya bean meal, and $\frac{1}{4}$ per cent. common salt; the medium protein ration was the cereal mixture with 6 per cent. of the same mixture of protein supplements, and $\frac{1}{2}$ per cent. salt; and the low protein ration the cereal mixture with $\frac{1}{2}$ per cent. salt only. During the nine months of the experiment with 20 birds in each group, those fed on the high protein ration consumed 610 lb. of mash; those fed on the medium protein ration, 640 lb.; and those fed on the low protein ration, 680 lb. In another experiment of a similar kind at the same centre it was found, however, that the food consumption of the low protein group of birds was less than in the other two groups, due to the fact that both it and egg production were much lower during the first six months of the test than was the case in the other two groups. In this latter test the results confirm those obtained at Greenmount in regard to common salt not being a complete substitute for a high protein supplement during the winter and early spring. Moreover, the results from both experiments at Dauntsey's School corroborate those from the experiments at Greenmount as regards comparative costs of egg production during the winter and early spring. The cost of food per dozen eggs produced by each group of birds in one experiment at West Lavington was as follows:—high protein ration, 5.7d., medium protein ration, 5.1d., low protein ration, 7.0d.; while in the other it was—high protein, 3.7d. per dozen, medium protein 4.4d. per dozen, low protein 5.6d. per dozen.

These results emphasise once again the necessity, from the economic point of view, of using a ration which is the most efficient for the purpose and not the one which is cheapest per cwt. to buy. The ration containing salt and no bran, which was used in the Greenmount tests, was much cheaper per cwt. than that containing meat meal and bran, yet when measured in terms of efficiency as a producer of eggs during the winter and early spring months, it was little more than half as efficient as the latter; further, with its use, the cost of producing eggs was increased by $1/1\frac{1}{2}$ d. per 100, as compared with the cost when the ration containing meat meal and bran was used.

A further point of importance and interest was the physical condition of the birds. While the average weights of the birds at the end of the test period

* Reports on Experiments 1934-1936.

do not show much difference in respect of the different groups, an inspection of the birds showed at once that they had not received similar treatment. The birds which received bran appeared at all times to be in better physical condition than those which did not, and this difference was noticed by visitors who did not know the disposition of the groups in the pens.

The results from these tests at Greenmount College have demonstrated clearly that bran is an important and necessary ingredient in the ration for laying hens, particularly during the winter and early spring months, if the ration is to be fully efficient.

ANNOUNCEMENTS AND REMINDERS.

GENERAL.

EDUCATIONAL EXHIBIT AT BALMORAL SHOW.—The Ministry's Educational Exhibit will be staged on the 26th May and the three following days at the show of the Royal Ulster Agricultural Society at Balmoral. This Exhibit, which will deal with the more important branches of agriculture, horticulture, poultry-keeping, dairying and forestry, will contain many features of special interest to farmers. Information regarding the Exhibit is given on page 15.

OX WARBLE FLY.—The fourth dressing of a suitable Derris wash for the destruction of warble fly maggots should be applied between the 7th and 14th June. Neglect to dress infested cattle within the periods specified is an offence against the Warble Fly Order and is likely to lead to a prosecution.

SHEEP DIPPING.—The summer sheep dipping period will extend from the 15th June to 15th August. During that period all sheep must be dipped twice, allowing an interval of not less than seven or more than fourteen days between the two dippings.

LEATHER-JACKET GRUBS IN OATS.—Watch out for attacks of leather-jacket grubs in oats following tea. Apply the Paris Green and bran bait immediately an attack is observed. Delay in applying the bait may result in serious damage to the crop with consequent loss. See page 36 and Leaflet No. 22 for details.

DESTRUCTION OF CHARLOCK.—Destroy charlock ("presauh") in oats and flax by spraying with copper sulphate solution before the weeds reach the flowering stage. Read Leaflet No. 38 for full particulars.

BACON QUALITY.—Guard against the production of bacon of inferior quality by the use of suitable foods in pig rations. Leaflet No. 35 gives examples of meal mixtures for pig fattening purposes which will produce good quality in the finished product.

CARE AND HANDLING OF EGGS.—Give particular attention to the quality of eggs for marketing during the summer months. Read the article on page 19 and also Leaflets Nos. 27 and 57 for useful hints on the care and handling of eggs on the farm.

LEAFLETS.—Copies of leaflets issued by the Ministry are obtainable free, on request.

TRAINING FOR GIRLS.—Courses of instruction in poultry-keeping, dairying and rural housewifery are provided at the Ministry's schools at Cookstown and Strabane, known as the Ulster Dairy School and the North West School, respectively. The next session at both schools begins on the 20th July, and intending pupils should send in their applications without delay. The various County Committees of Agriculture offer free scholarships to the North West School, and applications for these scholarships should be made to the Secretary of the County Committee of Agriculture for the County in which the applicant resides. There is no qualifying examination for these scholarships, or for admission to the Ulster Dairy School. Application forms are provided in the prospectuses of the schools, copies of which may be obtained, free on request, from the Ministry.

COTTAGE GARDEN PRIZE SCHEME.

This Scheme operates in Counties Antrim, Fermanagh and Down, and the competitions held under the Scheme are open to bona fide cottagers who reside in the rural districts of these counties.

Further particulars regarding the Scheme, and copies of the prescribed entry form, which must be lodged not later than 20th June, may be obtained from the Secretary or Agricultural Organiser of the County Committee of Agriculture concerned, whose names and addresses are given below—

- | | | |
|-------------------------|----|---|
| County Antrim | .. | A. B. Clarke, B.A., Secretary, County Antrim Committee of Agriculture, County Courthouse, Belfast. |
| County Fermanagh | | W. T. M'Clintock, B.Agr., Agricultural Organiser, County Fermanagh Committee of Agriculture, Courthouse, Enniskillen. |
| County Down | .. | J. L. Mawhinney, B.Sc., A.R.C.Sc.I., Agricultural Organiser, County Down Committee of Agriculture, Northern Bank Chambers, May Street, Belfast. |

FIXTURE LIST FOR AGRICULTURAL AND HORTICULTURAL SHOWS FOR THE YEAR 1937.

Title of Society or Association.			Centre.	Date.
County Antrim				
Royal Ulster Agricultural Society	..	..	Balmoral	26th, 27th, 28th, 29th May.
Ulster Horticultural Society	..	..	Belfast	17th and 18th November
Antrim Agricultural Society	..	..	Antrim	9th June.
Cushendall Agricultural Association	..	..	Cushendall	13th July.
County Antrim Agricultural Association	..	..	Ballymena	16th June.
Glenarm and District Agricultural Society	..	..	Glenarm	14th July.
Templepatrick Working Men's Association (Horti- cultural)	..	..	Templepatrick	18th August
North Antrim Horticultural Association	..	..	Ballymoney	26th and 27th August.
North Antrim Agricultural Association	..	..	Ballymoney	22nd June.
Ballymena Horticultural Society	..	..	Ballymena	1st and 2nd September.
County Armagh				
County Armagh Agricultural Society	..	..	Portadown	2nd June.
County Down				
Banbridge Farming Society	..	..	Banbridge	17th June.
Bangor Horticultural Society	..	..	Bangor	18th and 19th August.
Ardglass Young Farmers' Club	..	..	Ardglass	22nd April.
Castlewellan Agricultural and Industrial Association	..	..	Castlewellan	1st July.
Waringstown Horticultural Society	..	..	Waringstown	Date not yet available.
Newtownards Horticultural Society	..	..	Newtownards	2nd Sept.
County Londonderry				
North Derry Agricultural Association	..	..	Coleraine	10th June.
North West of Ireland Agricultural Society	..	..	Londonderry	23rd and 24th June.
Eglinton Gardening Society	..	..	Eglinton	23rd July.
Garvagh Women's Institute	..	..	Garvagh	29th July.
Dungiven Young Farmers' Club	..	..	Dungiven	10th August.
Coleraine and District Horticultural Society	..	..	Coleraine	3rd September.
Culmore Horticultural Society	..	..	Culmore	21st or 28th August.
City of Derry and District Horticultural Society	..	..	Londonderry	8th September.
Draperstown Young Farmers' and Poultry Clubs	..	..	Draperstown	6th August.
County Fermanagh				
Fermanagh Farming Society	..	..	Enniskillen	
Horse Jumping	..	..		19th May.
Annual Show	..	..		25th August.
County Tyrone				
Clogher Valley Agricultural Society	..	..	Clogher	21st July.
Tyrone Farming Society	..	..	Omagh	Date not yet available.

THE XVIIth INTERNATIONAL AGRICULTURAL CONFERENCE, .

THE HAGUE, 16th — 23rd JUNE, 1937.

The above Conference, which will be held next month under the patronage of H.M. The Queen of the Netherlands, was approved by the International Agricultural Commission at the general meeting at Oslo on the 29th July last year. This year's Conference has been divided into eight sections as follow:—

- I. Agrarian Policy and Rural Economy.
- II. Agricultural Instruction and Propaganda.
- III. Agricultural Co-operation.
- IV. Vegetable Production.
- V. Viniculture.
- VI. Animal Production.
- VII. Agricultural Industries.
- VIII. The Woman as a Labourer.

Perhaps the most important of these from the point of view of the Northern Ireland agriculturist are Sections I, II, III, IV and VI. Section I deals with the means employed to combat the agricultural crisis in the Netherlands, and the results obtained, whilst the organisation of the International Butter Market is also covered.

The Congress will be officially opened on the day following the meeting of the Bureau of the International Committee of Agriculture, to be held on the 16th proximo, and the last two days will be devoted to excursions.

The General Secretary of the Congress is Dr. H. Molhuysen, Post Box 300, The Hague, Holland.

FIFTEENTH EGG-LAYING TEST AT STORMONT.

RESULTS TO THE END OF THE SEVENTH PERIOD.

The seventh four-weekly period ended on the 15th of April, and particulars of the leading pens in the different sections as at that date are given in the table hereunder.

There was a further increase in egg-production during the period, the average, based on the 864 pullets originally penned, being 19.7 eggs per bird,

as compared with a similar average of 17.6 for the previous period. The total number of eggs laid during the seventh period was 17,043; of this number 15,648, or 91.8 per cent. were scoring eggs, i.e., 2 oz. or over in weight.

The highest sectional average egg production for the period is to the credit jointly of the birds in Sections 3 and 4, the average being 20.3 eggs per bird in both these Sections.

The flock average egg production, on the basis of the 864 birds originally entered, is 108.02 eggs per bird in the 28 weeks the test has been in progress.

Of the 35 deaths which have occurred since the test commenced, 7 took place during the seventh period. The mortality rate over the 28 weeks is 4.05 per cent., which is 0.55 per cent. less than the rate during the same period of the previous test.

SECTION 1. WHITE WYANDOTTES (OPEN). 28 pens.

Position.	No. of pen.	Name and Address of Owner.	No. of eggs laid during 28 weeks.				Score Value
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	22	Mr. J. C. Stewart, Balloo, Killinchy, Co. Down.	602	215	36	4	817
2	10	Mrs. D. C. Gamble, Roan Lodge, Coalisland, Co. Tyrone.	463	298	21	1	761
3	3	Mrs. J. M. Brogden, Fernshaw, Dungannon, Co. Tyrone.	415	339	110	3	754
4	4	Mr. R. A. Copeland, Blackscull, Dromore, Co. Down.	423	308	80	3	731
5	5	Mrs. H. G. Darley, Trory, Ballinamallard, Co. Fermanagh.	347	379	42	1	726

SECTION 2. WHITE LEGHORNS (OPEN). 13 pens.

1	39	Mr. J. Waugh, Ballyrickard, Kilwaughter, Larne, Co. Antrim.	422	280	18	3	702
2	33	Mrs. E. Johnston, Craigboy, Donaghadee, Co. Down.	537	122	18	—	659
3	35	Mr. W. D. Anderson, Ballyaugherty, Saintfield, Co. Down.	344	251	7	—	595

SECTION 3. RHODE ISLAND REDS (OPEN) 31 pens.

Position.	No. of pen.	Name and Address of Owner.	No. of eggs laid during 28 weeks.				Score Value
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	53	Miss J. A. Irwin, Mount Irwin, Tynan, Co. Armagh.	450	366	16	—	816
2	62	Mrs. D. Patterson, Ballycastle Road, Coleraine, Co. Londonderry.	350	357	158	6	707
3	60	Mr. R. J. O'Hanlon, Violet Cottage, Unshinagh, Portadown, Co. Armagh.	419	286	40	1	705
4	64	Mr. H. Ramsey, Sylvan Cottage, Gilnahirk, Belfast.	282	401	91	—	683
5	63	Mr. W. Patton, The Hill, Loughries, Newtownards, Co. Down.	480	182	24	—	662

SECTION 4. ANY OTHER PURE BREED (OPEN). 16 pens.

1	75	Mrs. M. Finlay, Langfield, Armoy, Co. Antrim. (Light Sussex.)	374	297	125	—	671
2	76	Mrs. H. Getty, Hillcrest, Newtownards Co. Down. (Light Sussex)	245	399	86	1	644
3	86	Mr. R. Holmes, Moneycarrie, Killykerigan, Coleraine, Co. Londonderry. (Buff Rocks)	428	214	80	6	642

SECTION 5 (a). WHITE WYANDOTTES (STATION HOLDERS). 14 pens.

1	93	Mr. C. E. Crooke, The Rocks, Blaney, Enniskillen, Co. Fermanagh.	343	490	91	4	833
2	99	Mrs. M. Rodgers, Ballyginney, Dundrum, Co. Down.	557	235	64	2	792
3	91	Mr. W. A. Bell, Donaghanie, Beragh, Co. Tyrone.	346	438	101	3	784
4	95	Miss M. M'Allister, Turnpike House, Backnamullagh, Dromore, Co. Down.	239	481	151	3	720

SECTION 5 (b). WHITE LEGHORNS (STATION HOLDERS). 14 pens.

1	112	Mrs. M. Noble, Roundpark House, Killycramph, Lisnaskea, Co. Fermanagh.	240	344	59	2	584
2	105	Mrs. J. Brown, Gorsebank, Culcrum, Cloughmills, Co. Antrim.	373	191	46	3	564
3	111	Mrs. J. Knox, Shanmullagh, Ederney, Co. Fermanagh.	297	252	9	1	549

SECTION 5 (c). RHODE ISLAND REDS (STATION HOLDERS). 20 pens.

Position	No. of pen.	Name and Address of Owner.	No. of eggs laid during 28 weeks.				Score value.
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	117	Mrs. R. J. Dunn, Ballyskeagh, Artigarvan, Co. Tyrone.	401	342	48	—	743
2	127	Mrs. H. McMaster, Little Ballymena, Broughshane, Co. Antrim.	524	147	16	2	671
3	122	Mrs. W. McCallum, Aldohil House, Newtownstewart, Co. Tyrone.	238	420	82	2	658
4	116	Miss S. M. Donaghy, Hilden, Ballymoney, Co. Antrim.	377	277	15	—	654

SECTION 6. POULTRY CLUBS AND YOUNG FARMERS' CLUBS. 12 pens.

Position.	No. of pen.	Name and Address of Club.	No. of eggs laid in 28 weeks.				Score Value
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	145	Saintfield Young Farmers' Club. Co. Down. (Rhode Island Reds)	314	298	87	2	612
2	135	Aghadowey Poultry Club, Co. Derry. (Rhode Island Reds)	258	343	75	10	601
3	141	Crumlin Poultry Club, Co. Antrim. (White Wyandottes)	235	357	181	14	592

“Score value” means the total of the super grade and first grade eggs. The pen of White Wyandottes entered by Mr. C. E. Crooke, The Rocks, Blaney, Enniskillen, in the Stationholders’ Section, is still the leading pen in the entire test; while the pen of White Wyandottes entered by Mr. J. C. Stewart, Balloo, Killinchy, in Section 1 is second. The pen of Rhode Island Reds entered by Miss Irwin, Mount Irwin, Tynan, in Section 3, is a good third, being led by the second place pen by only one scoring egg.

PRICES OF FEEDING STUFFS.

The following table shows the retail cash prices per cwt. of Feeding Stuffs at 1st May, 1937, in ten representative centres in Northern Ireland.

	Antrim		Armagh		Ballymena		Belfast		Castlewellsan		Coleraine		Dungannon		Enniskillen		Omagh		Strabane	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
STARCHY FOODS:																				
Maize (whole)	..	6 10½	—	—	7 6	6 9	6 9	7 9	7 9	8 0	8 0	8 0	7 6	7 6	7 9	—	—	—	7 0	—
Maize Meal	..	8 0	8 0	—	7 6	7 9	7 9	8 0	8 0	8 0	8 0	8 0	7 6	7 6	8 0	8 0	8 0	8 0	8 0	—
Maize, Flaked	..	8 9	8 9	—	8 0	8 3	8 3	8 3	8 3	8 3	8 9	8 9	8 6	8 6	8 0	9 0	9 0	9 0	8 6	—
Wheat (whole)	..	10 6	10 0	10 0	11 3	11 0	11 0	11 0	11 6	11 6	—	—	11 0	11 0	10 0	10 0	10 0	10 0	10 0	—
Bran, Red	..	9 6	9 6	—	9 1½	10 0	10 0	10 0	—	—	—	—	9 6	9 6	9 0	9 0	9 6	9 6	9 6	—
Bran, White	..	10 0	10 6	10 6	10 0	10 6	10 6	10 6	10 3	10 3	9 6	10 6	10 0	10 0	10 6	10 6	11 0	11 0	11 0	—
Pollard, Brown	..	9 6	9 0	9 0	9 6	9 6	9 6	9 6	—	—	10 0	10 6	9 6	9 6	9 6	9 6	9 6	9 6	9 6	—
Pollard, White	..	9 6	9 0	9 0	10 0	10 6	10 6	10 6	10 3	10 3	10 6	10 6	10 0	10 0	11 0	10 6	10 6	10 6	10 9	—
Barley Meal	..	10 6	10 6	10 6	10 1½	10 6	10 6	10 6	10 3	10 3	10 6	10 6	10 0	10 0	10 6	11 0	11 0	11 0	11 6	—
Oats (whole)	..	8 0	9 0	9 0	9 3	9 6	9 6	9 6	7 6	7 6	10 0	10 0	11 0	11 0	9 4	8 0	8 0	8 0	7 3	—
Crushed Oats	..	8 6	9 6	9 6	9 9	10 0	10 0	10 0	8 0	8 0	10 8	10 8	—	—	10 0	9 0	9 0	9 0	7 10	—
PROTEIN FOODS:																				
Linseed (whole)	..	13 0	16 0	—	18 0	18 0	18 0	12 0	20 0	20 0	18 6	18 6	20 0	20 0	16 0	17 0	17 0	16 9	16 9	—
Linseed Cake, home-made	..	—	—	—	12 0	12 0	12 0	11 0	11 3	11 3	12 0	12 0	11 0	11 0	11 0	13 0	13 0	—	—	—
Linseed Cake, foreign	..	11 0	—	—	10 6	11 0	11 0	11 0	—	—	12 0	12 0	—	—	10 0	11 0	11 0	11 3	11 3	—
Linseed Cake Meal	..	11 0	11 6	—	11 0	11 0	11 0	11 0	11 3	11 3	12 0	12 0	11 0	11 0	11 6	11 0	11 0	10 6	10 6	—
Cotton Cake, decorticated	..	10 9	—	—	10 0	11 0	11 0	11 0	10 9	10 9	10 0	10 0	10 9	10 9	10 6	11 0	11 0	10 6	10 6	—
Earthnut Cake, decorticated	..	10 6	—	—	10 0	9 6	9 6	9 6	—	—	10 0	10 0	10 0	10 0	10 0	—	—	9 9	9 9	—
Soya Bean Meal (extracted)	..	11 3	11 0	—	11 0	11 0	11 0	11 0	—	—	10 0	10 0	11 6	11 6	10 10	11 0	11 0	11 3	11 3	—
Fish Meal (60% protein)	..	—	—	—	15 6	16 0	16 0	16 0	—	—	—	—	—	—	—	—	—	—	—	—
Meat Meal (60% protein)	..	16 0	15 6	—	14 9	—	—	—	16 0	16 0	—	—	15 6	15 6	15 6	16 6	16 6	—	—	—
Meat and Bone Meal (40% protein)	..	—	11 0	—	—	10 6	10 6	10 6	—	—	11 6	11 6	11 6	11 6	11 3	—	—	11 0	11 0	—
MEDIUM PROTEIN FOODS:																				
Palm Kernel Cake	..	9 6	—	—	9 0	7 6	7 6	7 6	—	—	9 0	9 0	—	—	—	8 6	8 6	—	—	—
Palm Kernel Meal	..	9 6	9 6	—	9 0	7 6	7 6	7 6	—	—	9 0	9 0	—	—	10 0	—	—	—	—	—

NON-CONCENTRATES.—The average prices at representative markets at the beginning of May, were as follows: Potatoes, 4/8½d. per cwt.; Turnips (Swede), 10½d. per cwt.; Oat Straw, 49/4d. per ton; Upland Hay, 72/11d. per ton; Meadow Hay, 55/10d. per ton.

AVERAGE PRICES OF FEEDING STUFFS.

The following table shows the average retail prices per cwt. of feeding stuffs as at 1st May, 1937, with comparative prices as at the 1st of the previous month; the costs per unit of protein equivalent and of starch equivalent are also given in respect of each food.

	Protein equivalent	Starch equivalent	Average price per cwt. at		Cost per unit of Protein equivalent		Cost per unit of starch equivalent	
			1st May	1st Apl.	May	April	May	April
Protein Foods			s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Linseed	19.0	119.0	17 4	17 0	18 3	17 11	2 11	2 10
Crushed linseed	19.0	119.0	18 7	18 5	19 7	19 5	3 1½	3 1
Linseed cake (home-made)	25.0	72.0	11 9	11 7½	9 5	9 4	3 3	3 3
Linseed cake (foreign)	25.0	72.0	10 11	11 1	8 9	8 10	3 0	3 1
Linseed cake meal	25.0	72.0	11 5	11 4	9 2	9 1	3 2	3 2
Decorticated Cotton cake	35.0	71.0	10 7	10 4	6 0½	5 11	3 0	2 11
Decorticated Earthnut cake	41.0	73.0	9 11	10 3½	4 10	5 0	2 9	2 10
Extracted Soya Bean meal	38.0	64.0	11 0	10 11	5 9	5 9	3 5	3 5
Fish meal (60% protein)	53.0	59.0	16 2	16 1½	6 1	6 1	5 6	5 6
Meat meal (60% protein)	55.0	61.0	15 8	15 8½	5 8	5 9	5 2	5 2
Meat & bone meal (40% protein)	36.0	44.0	11 1	11 0	6 2	6 1	5 0	5 0
Medium Protein Foods								
Palm kernel cake	17.0	75.0	8 8	9 1½	10 2	10 9	2 4	2 5
Palm kernel meal	17.0	75.0	9 1	9 4	10 8	11 0	2 5	2 6
Starchy Foods								
Maize	6.8	81.0	7 5	7 3½	21 10	21 5	1 10	1 9½
Maize meal	6.8	81.0	7 10	7 8	23 0	22 6½	1 11	1 11
Flaked maize	8.6	83.0	8 6	8 2½	19 9	19 1	2 0½	2 0
Wheat	9.6	72.0	10 7	10 7½	22 0	22 2	2 11	2 11½
Red bran	10.0	43.0	9 5	9 5½	18 10	18 11	4 5	4 5
White bran	10.0	43.0	10 5	10 4½	20 10	20 9	4 10	4 10
Brown pollard	11.0	60.0	9 6	9 4½	17 3	17 0½	3 2	3 1½
White pollard	11.0	60.0	10 4	10 3	18 9	18 8	3 5	3 5
Barley meal	7.0	70.0	10 7	10 5½	30 3	29 11	3 0	2 11
Oats	7.6	60.0	8 10	8 4	23 3	21 11	2 11½	2 9
Crushed oats	7.6	60.0	9 3	9 0½	24 4	23 9½	3 1	3 0
Tapioca root flour	1.0	83.5	8 7	8 7½	171 8	172 6	2 1	2 1
Non-Concentrates								
Potatoes	0.6	18.0	4 8½	4 2½	156 11	139 7	5 3	4 8
Turnips (Swede)	0.7	7.0	0 10½	0 11½	25 0	27 5	2 6	2 9
Upland hay	4.9	24.0	3 8	3 6	15 0	14 3	3 1	2 11
Meadow hay	4.6	31.0	2 9½	3 0	12 2	13 0½	1 10	1 11
Oat Straw	0.9	20.0	2 5½	2 5½	54 7½	54 7½	2 5½	2 5½

The object of the foregoing tables, besides providing information regarding the prices of feeding stuffs and the trend of prices, is to give purchasers a

guide as to the economic purchase of supplies. It should be understood that the price per ton is not a sound basis on which to judge whether or not a particular food or grade of a particular food is good value for money. The composition of the foods is the only basis on which different grades can be compared. The value of foods of different kinds, but of the same nature in reference to market prices, can also be compared on this basis.

In the case of an artificial manure which supplies only one fertilising ingredient as, for example, sulphate of ammonia, which supplies nitrogen, the cost of the unit of nitrogen at the price charged can be determined quite readily by dividing the price per ton by the percentage of nitrogen in the sample, and the figure thus obtained is the cost of a unit of nitrogen. By this method the most economical source of nitrogen can be ascertained. Similarly, in the cases of phosphatic and potassic manures.

With feeding stuffs, however, the same method cannot be applied to determine comparative values. This is because every feeding stuff contains three important food constituents in varying proportions. These are (1) carbohydrates, (2) oils or fats, and (3) proteins or albuminoids. The carbohydrates comprise a group of substances such as starch, sugar and cellulose. These substances supply heat or energy to the animal, and the surplus goes to form fat. They are the fuel which the animal requires to keep the body "fires" burning. The oils of a feeding stuff are also heat and energy suppliers, and the surplus is stored as fat. The oils are approximately $2\frac{1}{2}$ times more valuable than the carbohydrates as heat and energy producers, but excess in a ration may lower its digestibility and cause digestive troubles. The proteins are the most valuable and most expensive food constituent. They contain nitrogen and are the part of the food from which products which contain protein are chiefly made. Thus the protein products, such as lean meat, milk and eggs, are formed principally from protein, and young, growing animals, dairy cows and laying hens must have an adequate quantity of protein for full growth, development and production.

While all animals require a certain amount of carbohydrates, oils and proteins, the relative amounts depend on the class of stock. For example, a two-year-old fattening bullock requires much less protein than a dairy cow in milk, and a fattening chicken less than a laying pullet.

There are wide differences in the composition of the different kinds of feeding stuffs. Some are rich in carbohydrates and, therefore, particularly valuable for fattening purposes. These include oats, maize, barley and wheat, and their products. Others are rich in protein and are valuable for producing flesh, milk and eggs. These include decorticated cotton cake, decorticated earthnut cake, meat meal and soya bean meal.

In the following table the composition of some of the commonly used feeding stuffs is shown—

	Water.	Protein.	Oil.	Carbohydrates.
Non concentrates				
Swede turnips ..	88	1	0.2	9
Potatoes ..	75	2	0.1	21
Cabbage ..	89	1.5	0.5	8
Oat Straw ..	14	4	2	37
Meadow hay ..	10	10	3	45
Pasture grass ..	80	3.5	0.8	10
Fattening Foods				
Crushed oats ..	13	9	6	60
Maize meal ..	12	10	4	70
Barley meal ..	13	12	2	66
Pollard ..	13	15	5	57
Flesh forming foods				
Decorticated Cotton cake ..	9	40	9	26
Decorticated Earthnut cake ..	10	46	7	23
Meat meal ..	11	60	6	—
Soya bean meal ..	11	44	1.5	32

The problem confronting the purchaser of feeding stuffs, who is concerned with the business of getting best value for money, is one which is much more difficult to solve than is the case with artificial fertilisers. There are at least four aspects of the problem to be considered :

- (1) the quality of the different foods offered for sale. This can be determined by reference to the particulars of composition which a seller must give a purchaser in accordance with the Fertilisers and Feeding Stuffs Act.
- (2) The physical condition of the foods, and if fresh or stale.
- (3) The suitability of the foods for the purpose in view.
- (4) The comparative values of the foods at the prices quoted.

The chief concern of this section of the Report is comparative values and, therefore, that aspect of the problem will be considered specifically.

The proteins play a part in the nutrition of the animal which cannot be taken by either carbohydrates or oils. In addition to this, the proteins, carbohydrates and oils have very different values for the production of energy or fat. It therefore follows that the simple procedure of totalling the percentages of these three ingredients and dividing this total into the price per ton in order to obtain a value for a unit of the food-stuff is quite unsound. Various methods have been used to compare the values of different feeding stuffs, but none is completely satisfactory. For practical purposes the least cumbersome is the

method whereby the food-stuffs are placed in groups of similar composition, and the values of the members of each group are then compared by consideration of (a) their protein equivalents, and (b) their starch equivalents. The starch equivalent is the number of pounds of starch which would be required to produce the same amount of "fat" in an animal as 100 pounds of the food-stuff in question. It is essentially a measure of the fat-producing value of the food-stuff. The protein equivalent is the number of pounds of digestible true protein, plus half the number of pounds of non-protein nitrogenous substances such as amides, present in 100 pounds of the food-stuff. It is a measure of the value of the food-stuff to the animal as a source of protein.

By this method all foods can be reduced to comparable standards based on (1) the protein equivalent, and (2) the starch equivalent.

The next stage in comparing values is to determine the cost of a unit of protein equivalent and of starch equivalent in the different foods which are being compared, and to enable the reader to do this the protein and starch equivalent figures for the different foods are given in the table on page 54, and also the cost per unit of protein equivalent and of starch equivalent in each case. These costs have been determined by dividing the protein equivalent figure and the starch equivalent figure, respectively, into the current price per ton, and the lower the quotient figures thus obtained the cheaper is the particular food as a source of protein or of starch equivalent as the case may be.

However, it would be quite misleading to compare the cost of a unit of protein equivalent in a protein food (which is purchased principally for its protein) with the cost of a similar unit in a starchy food. In other words, foods such as maize meal and pollard cannot be compared on the basis of cost of protein equivalent with foods such as decorticated cotton cake and meat meal.

The best course to adopt is to consider for what purpose the particular food is required, decide what foods are suitable for that purpose, examine the samples of these different foods which are offered and, if all appear to be satisfactory, apply the unit value system of determining which one provides protein equivalent or starch equivalent at the cheapest rate. A few examples may be helpful in explaining the procedure.

- (1) Suppose it is intended to purchase a protein food for the purpose of balancing a ration for dairy cows. The protein foods suitable for dairy cows are decorticated cotton cake, decorticated earthnut cake and soya bean meal. From the table on page 54 it is seen that at the current average prices of these foods the cost of the unit of protein equivalent in each is as follows :—

Decorticated cotton cake	...	...	6 0½d.
Decorticated earthnut cake	...	...	4 10d.
Soya bean meal	...	...	5 9d.

Amongst the decorticated cakes, cotton cake is the cheapest source of protein.

- (2) A protein food is required as a milk substitute to fatten the ration for fattening pigs. The foods suitable for this purpose are soya bean meal, meat meal and meat and bone meal. Referring again to the table, it is seen that at the current average prices of these foods the cost of the unit of protein equivalent in each is as follows:—

Soya bean meal	...	...	5 9d.
Meat meal (60% protein)	...	...	5 8d.
Meat and bone meal (40% protein)	...	...	6 2d.

Therefore meat meal (60% protein) is the cheapest source of protein amongst the purchased foods suitable for pigs. This example shows also how the price per ton may mislead a purchaser into thinking he is being economical when he buys at the cheapest price. The 60% meat meal costs 4/7d. per cwt. more than the 40% meat and bone meal, and yet it is a cheaper source of protein than the latter. Besides, a lesser proportion in the meal mixture will suffice, and having usually a lower content of oil than the 40% grade, it is likely to prove more satisfactory than that grade, both from the thriving point of view and its effect on the quality of the bacon.

- (3) Whether is it more economical to feed white pollard than brown pollard or white bran than red bran, even though the prices per ton of the white grades are higher than those of the brown or red grades? The figures in the table show that the cost of both the unit of protein equivalent and of starch equivalent is less for the brown pollard than the white, and less for the red than the white bran. It follows, therefore, that at current prices the coloured grades of pollard and bran are cheaper than the white grades. It should be remembered in this connection, however, that the comparison of costs in these cases have been made on the assumption that the composition of the coloured grades is the same as that of the white grades. A pollard containing say, 8 per cent. fibre, even if of a white colour, would have a far lower feeding value than one containing only 4 per cent. of fibre. Colour is not a guide as to the feeding value of pollard or bran.

PRICES OF FERTILISERS.

The following table shows the ranges of retail cash prices of fertilisers per ton at 1st May, 1937 :—

				Cost of unit of fertilising ingredient at average of range of prices shown.		
				Nitrogen.	Phos. Acid	Potash
Nitrogenous Manures						
Nitrate of Soda (15%N.)	£	s. d.	£ s. d.	11/3		
Sulphate of Ammonia (20.6%N.)	7	5 0	8 10 0	7/7½		
Nitro Chalk (15.5%N.)	7	5 0	9 5 0	10/7½		
Phosphatic Manures						
Superphosphate (16% S.P.A.)	3	12 6	4 0 0		4/9½	
Semsol (5% S.P.A. 15½% P.A.)	3	0 0	3 12 6		3/2½	
Basic Slag (18% P.A.)	3	15 0	4 0 0		4/3½	
Gafsa Rock Phosphate (26% P.A.)	2	15 0	3 6 0		2/4	
Potash Manures						
Kainit (14% P.)	3	0 0	4 5 0			5/2½
Potash Salts (20% P.)	4	0 0	4 10 0			4/3
Potash Salts (30% P.)	5	0 0	6 0 0			3/8
Muriate of Potash (50% P.)	8	0 0	9 0 0			3/4½
Agricultural Salt	1	10 0	3 10 0			

Abbreviations:—N=Nitrogen. S.P.A.=Soluble Phosphoric Acid. P.A.=Phosphoric Acid
P.=Potash.

The cost of the unit of fertilising ingredient is determined by dividing the price per ton at which the manure is offered by the percentage of the ingredient contained in the manure, and this method of determining values is the only sound basis on which two grades of a manure which supply the same fertilising ingredient can be compared. The price per ton is not a reliable guide as to whether or not a particular manure is good value for money. For example, in the table of prices it is seen that the average of the range of prices for 14% Kainit is £3 12s. 6d. per ton, and for 30% Potash Salts £5 10s. 0d. per ton, and it might be concluded that the Kainit was the better value for money. This is not so. The 30% Potash Salts contains more than twice as much Potash as the Kainit, and is, therefore, a cheaper source of potash when the price is even double that at which the Kainit is offered. The cost of a unit of potash in the 30% Potash Salts is seen to be only 3s. 8d., whereas the cost of a unit of potash in Kainit is 5s. 2½d. At the prices ruling for these manures, therefore, 30% Potash Salts is better value for money than Kainit. Similarly, it is seen that at the prices prevailing Gafsa Rock Phosphate is a cheaper source of Phosphoric Acid than Basic Slag, and that of the Nitrogenous manures Sulphate of Ammonia is the cheapest source of Nitrogen.

In connection with the costs of the units of Phosphoric Acid, as shown in the table on page 59, it should be noted that in the case of Superphosphate, the cost is that of a unit of Soluble Phosphoric Acid; whereas in the cases of Basic Slag and Gafsa Rock Phosphate, the figures represent the cost of a unit of insoluble phosphoric acid in each, and in the case of Semsol, the cost of the unit of fertilising ingredient is in respect of a mixture containing $15\frac{1}{2}\%$ insoluble phosphoric acid and 5% soluble phosphoric acid. It would not, therefore, be correct to compare the unit price of the phosphoric acid in Superphosphate with those of the phosphoric acid in the other three.

PRICES OF FAT STOCK.

The following were the average prices per live cwt. of bullocks and heifers, sold at Belfast Auction Marts during each of the four weeks ended 27th April, 1937:—

Week ended.		Bullocks.			Heifers.	
		s.	d.		s.	d.
6th April	...	41	3	...	41	0
13th April	...	41	6	...	41	6
20th April	...	43	6	...	42	9
27th April	...	44	6	...	43	9

PRICES OF AGRICULTURAL SEEDS.

The following table shows the average retail cash prices of seeds at 1st May, 1937, with comparative figures for the corresponding date in 1936 and 1935:—

					1937	1936	1935
					s. d.	s. d.	s. d.
Corn (Seed) :							
Wheat (Irish grown)	..	..	per cwt.		11 4	9 0	9 4
" (imported)	..	..	"		14 6	11. 3	10 10
Oats (Irish grown)	..	..	"		10 5	7 2	7 6
" (imported)	..	..	"		13 6	9 1	10 0
Barley (Irish grown)	..	..	"		13 1	9 0	10 3
" (imported)	..	..	"		14 7	12 0	11 0
Root and Green Crops (Seed) :							
Turnips (Swede)	..	..	per lb.		2 9	2 0	2 8
" (Aberdeen)	..	..	"		1 7	1 4	1 8
Mangels	..	..	"		1 5	1 5	1 8
Carrots	..	..	"		3 9	4 11	5 7
Parsnips	..	..	"		1 7	2 0	2 8½
Rape	..	..	"		0 6	0 7	0 7½
Clover Seeds :							
Broad Red	..	..	"		1 0	} 0 11	1 0
Late-flowering Red	..	..	"		1 7		
White	..	..	"		1 3	1 0	1 2
Wild White (Kentish)	..	..	"		8 1	3 11	4 8
Alsike	..	..	"		1 3	1 5	1 7
Flax Seed :							
Commercial Varieties—							
Dutch	..	per bag of 13 to 14 stones.			42 6	46 0	42 6
Pernau	..	"			46 10	46 6	48 9
Riga	..	"			42 0	48 0	50 9
Pure Line Blue-Flowering Varieties—							
Stormont Gossamer	..	per cwt.			75 0	69 2	—
Stormont Cirrus	..	"			75 0	70 0	—
Liral Crown	..	"			75 0	67 6	—
Liral Dominion	..	"			75 0	62 6	—
Liral Monarch	..	"			75 0	62 6	—
J. W. S.	..	"			40 0	58 9	66 3
White-Flowering Concurrent	..	"			37 4	39 5	—
Grass Seed :							
Irish Perennial	28 lb. to bushel.	.. per bushel			7 2	6 1	10 3
26 "	" "	"			6 6	5 7	9 0
Scots. Perennial	28 lb. to bushel.	..			8 5	7 2	11 2
26 "	" "	"			8 0	6 4½	—
Irish Italian	22 " "	"			5 1	5 2	9 8
French Italian	22 " "	"			6 1	6 8	11 0
Cocksfoot	..	per lb.			0 8	0 6	0 8
Meadow Fescue	..	"			0 9	0 8	1 2
Timothy	..	"			0 7	0 6	1 0
Crested Dogtail	..	"			1 6	—	—
Rough-Stalked Meadow grass	..	"			2 2	—	—
Potatoes :							
Epicure	..	per cwt.			6 1	4 6	4 3
May Queen	..	"			12 0	9 4	7 9
British Queen	..	"			6 9	6 2½	3 7
Arran Victory	..	"			5 4	4 5	3 0
Kerr's Pink	..	"			5 0	4 5	2 11
Up-to-Date	..	"			4 6	4 5	2 4

PRICES OF LIVE STOCK.

Average prices of Live Stock at Fairs during the month of April, 1937.

Date	Fair	Calves (under 9 months)	Store Cattle	Fat Cattle (18 months and over)	Springers		Milch Cows	Fat Lambs (under 12 months old)	Fat Sheep (over 2 years old)	Young Pigs
					Cows	Heifers				
		Per head £ s.	Per cwt. Live weight.	Per cwt. Live wgt.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £ s.
1	Strabane ...	—	35/- to 36/-	35/-	13 0	—	—	—	—	—
1	Ballymoney...	5 15	30/- to 36/-	34/-	16 5	14 5	—	—	—	1 9/6
2	May ...	—	36/- to 40/-	35/6	15 15	14 5	—	—	—	—
6	Omagh ...	5 18/3	39/- to 42/6	36/-	15 0	13 10	—	—	*2 2/6	—
7	Londonderry ...	—	28/6 to 35/-	35/6	14 10	13 0	—	—	—	—
8	Irvinestown ...	6 6/9	34/- to 37/-	35/-	15 0	13 10	—	—	*2 0	1 6
8	Rathfriland ...	5 8	36/- to 41/-	38/-	17 0	16 10	—	—	*2 2/6	1 6
9	Ballygawley ...	—	28/- to 38/-	37/6	16 0	—	*2 5	—	†1 18/9	3/9
10	Enniskillen ...	4 15	28/- to 35/-	37/6	14 10	12 10	—	—	*1 17/6	1 10
14	Crossgar ...	—	35/- to 38/-	—	17 0	—	—	—	—	1 10
15	Ballynahinch ...	—	32/- to 38/-	—	17 10	—	—	—	—	1 15
17	Portadown ...	5 3/3	32/- to 38/-	39/-	17 0	15 0	—	—	—	1 15
19	Camlough ...	5 10	28/- to 33/6	39/-	17 0	15 10	—	—	—	1 10
21	Lisnaskea ...	5 0	27/6 to 38/-	38/-	14 0	14 0	—	—	*2 0	—
21	Money more ...	5 5/9	33/- to 42/6	40/6	17 10	16 0	—	—	—	1 9
22	Fintona ...	6 1/9	40/- to 42/6	40/-	15 0	13 10	*2 1/3	*2 3/9	—	8/6
29	Antrim ...	—	41/- to 47/6	43/-	19 0	16 0	*2 0	*2 5	—	1 8
30	Killylea ...	—	30/- to 41/-	43/-	17 0	—	—	—	†2 15	—
30	Castlederg ...	5 0	40/- to 41/-	41/-	14 0	12 10	—	—	*2 0	1 5
1st May	Ballymena ...	6 17/3	26/6 to 39/-	—	22 0	21 10	—	—	—	1 11

* Downs and Cross.

† Long Wools.

† Mountain.

SHIPMENTS OF LIVE STOCK.

Statement showing the Shipments of Live Stock from Northern Ireland ports during the following periods:—Months of April, 1937, March, 1937, April, 1936; Four months ended 30th April, 1937, and 30th April, 1936.

PORTS OF :—	CATTLE.					SHEEP.			PIGS.					
	Fat	Stores	Milch Cows	Springers.	Calves	Total	Fat	Stores	Lambs	Total	Fat	Stores	* Total	Horses
Belfast ...	5,108	9,482	1,078	105	41	15,814	1,008	—	389	1,397	8,039	65	8,104	279
Larne ...	15	3,236	—	3	—	3,254	—	—	—	—	2,953	255	3,208	28
Londonderry ...	350	11,815	7	47	1,130	13,349	597	—	203	800	1,041	—	1,041	3
Newry ...	19	153	—	—	—	172	—	—	—	—	—	—	—	—
Total, April, 1937 ...	5,492	24,686	1,085	155	1,171	32,589	1,605	—	592	2,197	12,033	320	12,353	310
Total, March, 1937 ...	7,779	21,410	1,093	69	365	30,716	4,052	—	66	4,118	10,344	412	10,756	180
Total, April, 1936 ...	6,894	17,890	1,067	118	3,675	29,644	464	—	975	1,439	3,780	117	3,897	484
Total, Four months ended 30th April, 1937 ...	28,610	68,967	4,188	357	1,973	104,095	17,104	—	658	17,762	44,729	1,072	45,801	804
Total, Four months ended 30th April, 1936 ...	33,153	61,844	4,079	331	8,223	107,630	5,982	—	990	6,972	16,913	184	17,097	1,494

IMPORTS AND EXPORTS.

Table showing the Imports and Exports through Northern Ireland ports of certain Agricultural Products during the month ended 31st March, 1937, and the three months ended 31st March, 1937, with comparative figures for the corresponding periods in 1936.

(These figures are supplied through the courtesy of the Ministry of Commerce and are subject to revision).

COMMODITY.		IMPORTS.			EXPORTS.			
		Month ended 31st March	3 months ended 31st March	Month ended 31st March	Month ended 31st March	3 months ended 31st March	3 months ended 31st March	3 months ended 31st March
		†1937	†1937	†1937	1936	†1937	1936	1936
Bacon	... cwt.	1,661	3,268	5,445	10,079	37,256	33,890	101,236
Hams	... cwt.	658	1,465	3,568	5,236	11,227	9,993	30,698
Pork	... cwt.	—	1,348	1,535	4,281	3,399	3,198	8,935
Butter	... cwt.	17,180	15,281	44,269	46,864	189	262	491
Eggs	... gt. hds.	6,407	149,123	75,046	264,852	270,539	262,414	509,918
Oat Products (inc. Oatmeal)cwt.		2,561	1,503	6,044	6,632	9,540	7,754	30,069
Potatoes	... tons	7	2,496	1,205	5,215	*28,387	*30,098	*77,222
Poultry	... cwt.	9	613	905	1,870	13,399	9,269	75,227
Grass Seeds	... cwt.	1,193	819	4,077	4,067	41,418	48,814	141,187
								150,164

* These figures represent the quantities of potatoes inspected for shipment by the Ministry of Agriculture.

† These figures do not include direct trade with places abroad.

Table showing the numbers of Live Stock (1) exposed for sale, and (2) sold at 20 fairs in Northern Ireland during the months of April, 1936, and March and April, 1937.

Description of Live Stock.	April, 1936.		March, 1937.		April, 1937.	
	Number exposed for sale.	Number sold.	Number exposed for sale.	Number sold.	Number exposed for sale.	Number sold.
Store Cattle ...	7,851	6,550	6,196	4,740	7,485	6,239
Fat Cattle ...	1,858	1,720	1,827	1,679	1,582	1,469
Dairy Cattle ...	1,240	955	991	755	1,163	956
Sheep ...	663	430	248	149	368	291
Lambs ...	131	113	79	69	6	5
Young Pigs ...	3,170	2,725	2,397	1,988	3,282	2,230

Trade in livestock at Fairs held during April showed a further general improvement, and was the best for some considerable time past, particularly in the store and fat cattle departments. Business was exceptionally brisk for forward stores, and prices moved steadily towards higher levels. Although the numbers of store cattle were increased since March they were still under average for the time of the year, and barely sufficient for requirements. All classes met a well-sustained demand, and good clearances were readily effected at prices which moved in seller's favour. Good strong types of black and blue bullocks were bought up for shipment, and nice coloured heifers suitable for breeding purposes remained in strong favour, but all classes sold well. Graziers were very active, and good quality small stores were a particularly brisk trade, whilst feeders were on the look-out for older types suitable for fattening. Fat stock supplies were slightly increased, but did not exceed the demand. Trade in this end continued brisk, and prices advanced to further high levels.

In the dairy cattle section supplies were much larger than the previous month. Trade was fairly steady throughout the month, with prices showing no appreciable alterations. Nice young dairy cows and springers showing possibilities, were in keen demand, but rough and thin animals remained a slow trade.

There were slight seasonal increases in the numbers of sheep, and trade generally was firm at round late rates. Spring lambs were keenly sought after, but on account of the backward state of the season these were very

limited in number, and some fancy prices were paid for the few sold. Fat sheep suitable for butchering were also in strong request locally at recent satisfactory rates. The best types of breeding ewes with lambs at foot also sold at firm prices.

Young pigs were above the average in numbers, but the demand at most fairs was quiet, and prices generally tended cheaper. A fair enquiry ruled for good quality breeding sows at unchanged rates.

10th May, 1937.

This report will be sent free monthly as issued on application being made to the Secretary, Ministry of Agriculture, Stormont, Belfast.

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USEFUL and practical courses of instruction in poultry-keeping, dairying and domestic science are provided for girls at this School.

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MINISTRY OF AGRICULTURE. List of Leaflets and other Publications.

LEAFLETS.

- | | |
|--|---|
| <p>No 1. Flax Seed, 1937.
 " 2. Improvement of Farm Poultry.
 " 3. Feeding for Egg Production.
 " 4. Marketing of Eggs.
 " 5. The Dishorning of Calves.
 " 6. The Packing of Apples in Standard Boxes.
 " 7. Potato Trials.
 " 8. Seed Testing for Farmers.
 " 9. The Renovation of Orchards.
 " 10. Fruit Tree Pests—Capcid Bugs.
 " 11. Fruit Tree Pests—Aphides and Apple Sucker.
 " 12. Fruit Tree Pests—Caterpillars.
 " 13. Contagious Abortion in Cattle.
 " 14. Cheese-making on the Farm.
 " 15. Suitable Varieties of Fruit.
 " 16. The Feeding of Dairy Cows.
 " 17. Home Bottling of Fruits and Vegetables.
 " 18. Marketing of Dead Poultry.
 " 19. How to Feed Linseed.
 " 20. The Hatching and Rearing of Chickens.
 " 21. The Uses and Advantages of Portable Poultry Houses.
 " 22. Leather-Jacket Grubs.
 " 23. The Handling and Care of Wool.
 " 24. Fluke in Sheep.
 " 25. The Rearing and Management of Young Horses.
 " 26. Ordnance Survey Maps for Farmers.
 " 27. How to Keep Eggs Clean.
 " 28. The Construction of a Laying House for Poultry.
 " 29. The Selection and Breeding of Laying Hens.
 " 30. Coccidiosis in Poultry.
 " 31. Roup of Poultry (Fowl Pox).
 " 32. Spraying Calendar for Apple Orchards.
 " 33. The Pruning of Apple Trees.
 " 34. The Fattening of Pigs.
 " 35. Advantages of Milk Recording.
 " 36. The Raising and Fattening of Turkeys.
 " 37. The Destruction of Charlock.
 " 38. The Production of Clean Milk.
 " 39. The Laying Down and Management of Temporary Pastures.
 " 40. Blackleg, Blackquarter or Quarterill.
 " 41. The Purchase of Balanced Rations for Dairy Cows.
 " 42. Tuberculosis in Poultry.</p> | <p>No. 44. Results of Crop Experiments, 1936.
 " 45. The Breeding and Rearing of Pigs.
 " 46. Hints for Winter Egg Production.
 " 47. The Care and Management of Sheep.
 " 48. American Gooseberry Mildew.
 " 49. Potato Blight.
 " 50. Butter-making on the Farm.
 " 51. Gapes in Chickens.
 " 52. The Breeding and Rearing of Calves.
 " 53. Destruction of Ragwort or Benweed.
 " 54. Identification of Egg Supplies.
 " 55. How to have Eggs of First Quality.
 " 56. How the Fertilisers and Feeding Stuffs Act benefits the Farmer.
 " 57. Bacillary White Diarrhoea (Pullorum Disease).
 " 58. Advantages of Winter Agricultural Classes.
 " 59. The Care and Management of Breeding Bulls.
 " 60. The Production of Timber on the Farm.
 " 61. Sheep—Castration, Docking, Foot-Rot and Care of Feet.
 " 62. The Destruction of Warble Fly Maggots in Cattle.
 " 63. The Packing of Apples in Barrels.
 " 64. Seed Testing Facilities for Traders.
 " 65. The Cultivation of Vegetables.
 " 66. The Cultivation of Strawberries.
 " 67. The Construction of Piggeries.
 " 68. Kingworm.
 " 69. The Cultivation of Raspberries.
 " 70. Tree Planting for Shelter and Ornament.
 " 71. The Propagation and Maintenance of Healthy Stocks of Potatoes.
 " 72. New Pure Strains of Flax.
 " 73. Pig Production and the Pigs Marketing Scheme.
 " 74. Acarine (Isle of Wight) Disease of Bees.
 " 75. Licensing of Milk Producers and Distributors.
 " 76. Graded Milk.
 " 77. The Picking and Storing of Apples.
 " 78. Hoose or Husk in Farm Stock.
 " 79. The Construction of Cow Houses.
 " 80. White Scour in Calves.
 " 81. The Care, Management and Feeding of the Poultry Breeding Stock.</p> |
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Any of the above leaflets may be obtained free of charge and post free on application to the Secretary, Ministry of Agriculture, Stormont, Belfast.

CIRCULARS.

- No. 1. Phosphatic Fertilisers.
 " 5. Why Pay a Tax on the Horns of Cattle?
 " 8. Basic Slag.
 " 9. Smut in Oats.
 " 10. Purchase of Fertilisers and Feeding Stuffs.
 " 11. Fertilisers and Feeding Stuffs Act—General Summary.
 " 12. The Treatment of Liver Fluke.
 " 13. The Ox-Warble Fly.
 " 306. Fertilisers and Feeding Stuffs Act, 1926—Revision of Regulations.

MISCELLANEOUS PUBLICATIONS.

Store Cattle.
 Reports on Egg-Laying Tests.
 Crop Insurance.
 List of Growers of Certified Crops of Immune Varieties of Potatoes.
 List of Growers of Certified Crops of Non-Immune Varieties of Potatoes.
 The Ministry's Monthly Report.
 Register of Premium Stallions.
 Guide to the Live Stock Breeding Act (Northern Ireland), 1922.
 Guide to the Marketing of Fruit Act (Northern Ireland), 1932.

Any of the above publications may be obtained free of charge and post free on application to the Secretary, Ministry of Agriculture, Stormont, Belfast.

The following publications can be obtained from His Majesty's Stationery Office, 80 Chichester Street, Belfast, at the prices stated—

- (1) The Annual Report of the Ministry of Agriculture for Northern Ireland. Price 2/6 net.
- (2) Annual Report upon the Agricultural Statistics of Northern Ireland. Price 2/- net.
- (3) The Journal of the Ministry of Agriculture for Northern Ireland. Price 2/6 net.
- (4) The Agricultural Output of Northern Ireland, 1925. Price 2/6 net.